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JULY 1979

AVIATION DIGEST

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Cover: The General Staff Badge with the Pentagon in the background introduces a series of articles explaining Army aviation at the Department of the Army level. See page 1. The ***Aviation Digest*** thanks the U.S. Army Audiovisual Center, HQDA, for the cover photograph

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Richard K. Tierney
Editor

The mission of the *U.S. Army Aviation Digest (USPS 415-350)* is to provide information of an operational, functional nature concerning safety and aircraft accident prevention, training, maintenance, operations, research and development, aviation medicine and other related data.

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Management of Army Aviation

An Overview by
BG Carl H. McNair Jr.

Deputy Director of Requirements
and
Army Aviation Officer
Headquarters, Department of the Army

THIS ISSUE of the *Army Aviation Digest* features a collection of articles that explain how Army aviation is managed at the Headquarters, Department of the Army (HQDA) level. Writing in my capacity as the Army Aviation Officer, Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS), HQDA, I have provided a broad overview of the process by which Army aviation is integrated into all staff planning at the top Army level with a focus on ODCSOPS aviation functions and the team that accomplishes them. Most of the accompanying articles in this issue similarly concentrate on the aviation functions found within other areas of the Army Staff.

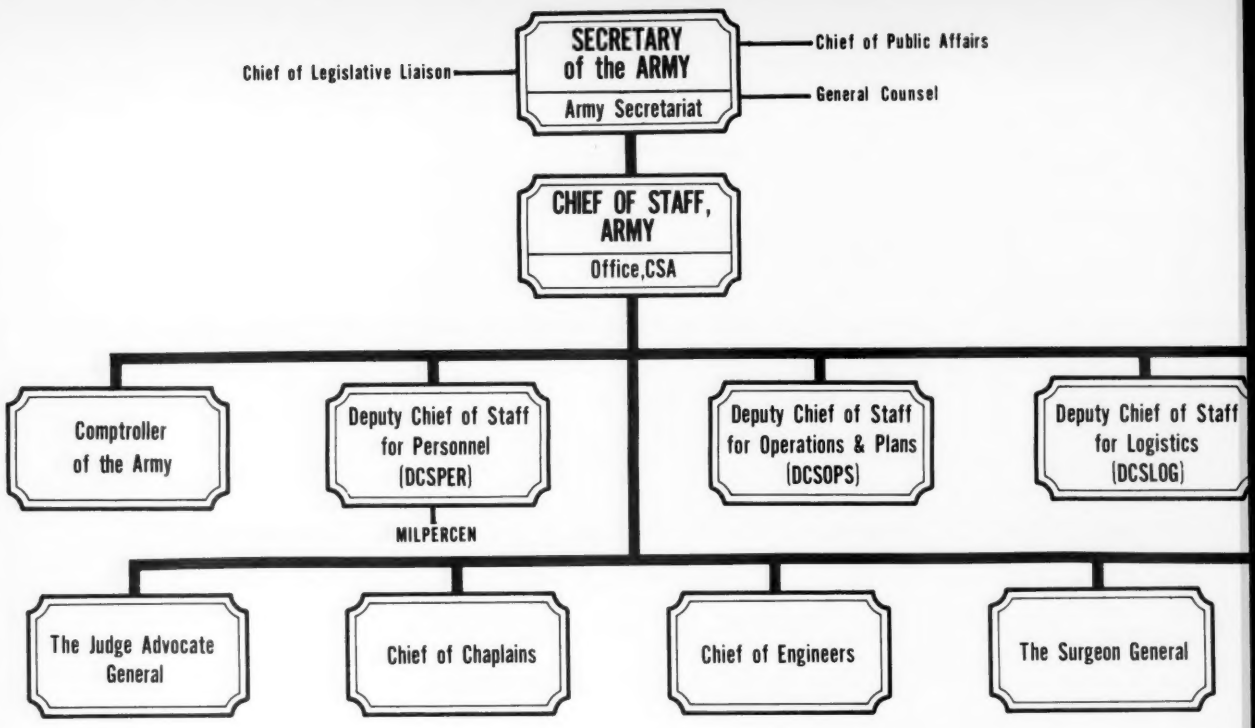
The primary purpose of the Department of the Army General Staff is to provide top level management for the Army. The current system for management of Army aviation is integral to this overall Army management system. It is exercised within the established Army Staff system through implementation of Army regulations and policies to accommodate aviation-peculiar requirements.

The interrelationships between the various Army elements involved in aviation management are not unique. However, the presence of a general officer on the Army Staff, designated the Army Aviation Officer, provides a focal point and overall monitoring capability not enjoyed by the other combat systems. This comes about because of the unique role of Army aviation and its total integration into the Army mission. Consequently, the position of Army Aviation Officer has been consolidated with that of the Deputy Director of Requirements in the ODCSOPS Directorate where all Army requirements come together. The office carries no unusual tasking or veto authority over other agencies responsible for aviation management, but the Army Aviation Officer does serve as the principal advisor to the Deputy Chief of Staff for Operations and Plans and to the Chief of Staff, United States Army on aviation operational matters. In turn, the Army Aviation Officer in the Army Staff focal point for coordination of all actions involving Army aviation operations and is the Army's primary spokesperson to Congress on aviation-unique matters.

The Army aviation management system is characterized by centralized control of critical resources. Externally, the Army is required to centrally manage its activities to interface with the international and national civil and military aviation operations. Internally, the Army recognizes the need to manage scarce, highly trained personnel and high dollar, critical materiel resources to optimize effectiveness and minimize cost. The high visibility of aviation operations and safety within both military and civil sectors adds impetus to the need for centralized control which is exerted in the following areas:

- **Aviation Operations and Requirements:** The Aviation Team of Combat Division, Requirements Directorate, ODCSOPS, serves as the coordination office and monitoring agency for aviation operations, equipment requirements, standardization, policy and combat development actions. The activities of this team will be discussed in more detail later.

- **Aviation Research, Development and Acquisition:** The Aviation Systems Division, Weapons Systems Directorate, ODCSRDA, serves as the central point on the Army Staff for Army aviation research, development and acquisition. The article beginning on page 9 describes these activities. At the Army Secretariat level, there is a Deputy for Aviation assigned to the Office, Assistant Secretary of the Army (Research, Development and



Acquisition) with responsibility for focus on aviation hardware programs within the Office of the Secretary of the Army.

• **Aviation Personnel:** Army aviation is the only specialty which has aviator utilization rates directed by law and requires personnel utilization rates to be reported annually to Congress (Aviation Career Incentive Act of 1974). This legislation recognizes aviators to be a valuable resource which requires extensive training time and significant costs to produce and retain, particularly in view of civil job competition. Aviation personnel management is an Office of the Deputy Chief of Staff for Personnel (ODCSPER) Army Staff responsibility. The U.S. Army Military Personnel Center (MILPERCEN) plays a major role, of course, in executing the plans, programs and personnel policies directed by the DCSPER. ODCSPER and MILPERCEN articles also are found on pages 14 and 16, respectively.

• **Aviation Logistics:** The Special Assistant to the Deputy Chief of Staff for Logistics (DCSLOG) and Chief, Aviation Logistics Office serves as the principal advisor to the DCSLOG for all aviation logistics and related matters and is the Army Staff focal point and principal spokesperson on aviation logistics. The Aviation Logistics Office is the single coordinating and monitoring agency within HQDA for initiating and implementing logistics concepts, policies, practices and techniques unique to Army aviation. Background and details appear in the article beginning on page 12.

• **Aviation Training:** The responsible agency on the Army Staff for aviation training is Training Directorate, ODCSOPS. Personnel assigned within the divisions of the directorate serve as focal points for these areas. Aviation training management is the subject of the article beginning on page 6.

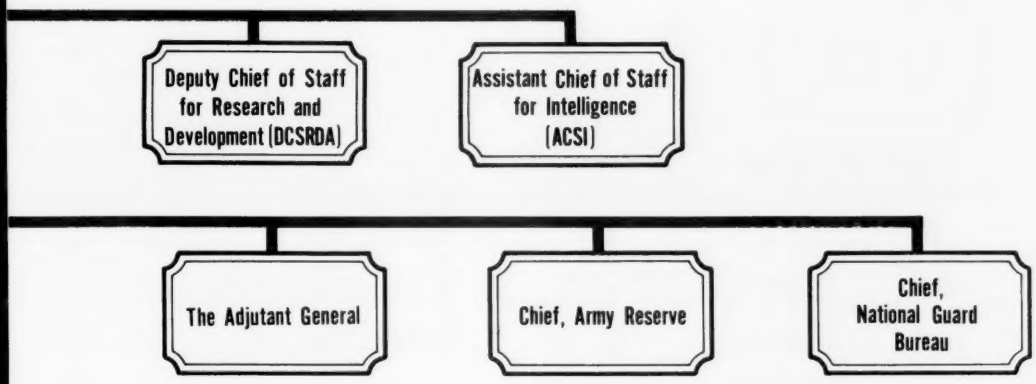
• **Aviation Force Development:** An action officer within the Force Structure Plans Division, Force Management Directorate, ODCSOPS, serves as the focal point for aviation force development management. This action officer has the added responsibility of integrating the ARCSA III force (Aviation Requirements for the Combat Structure) into the total Army force structure.

• **Aviation Readiness:** An action officer within the Force Readiness Division, Operations and Readiness Directorate, ODCSOPS, is charged with the responsibility for monitoring the readiness posture of Army aviation units and the development of aviation unit readiness standards.

• **Reserve Components:** Both the Office, Chief of the Army Reserve, and the Army National Guard Directorate of the National Guard Bureau have strong Army aviation management interests. The Army Reserve article begins on page 26 and the National Guard story starts on page 22.

• **Aviation Safety:** Until recently, aviation was the only hardware program that had a separate safety organization. However, as part of the reorganization of the Army Safety Program, the Agency for Aviation Safety was expanded to become the Army Safety Center and now in-

Figure 1: The Army Staff


Deputy Chief of Staff for Research and Development (DCSRDA)
Assistant Chief of Staff for Intelligence (ACSI)
The Adjutant General
Chief, Army Reserve
Chief, National Guard Bureau

cludes general safety as well as aviation safety. At the Army Staff level, the Office of the Director of Army Safety moved under ODCSPER and the Army Safety Center now responds to the DCSPER as a field operating agency.

• **Aviation Standardization:** The Army Aviation Flight Standardization Program is the responsibility of the Deputy Chief of Staff for Operations and Plans (DCSOPS), HQDA. For standardization purposes, the standardization teams provided by the U.S. Army Aviation Center at Ft. Rucker, AL are an extension of ODCSOPS and submit their reports directly to the Army Aviation Officer, who serves as the executive chairperson of the Army Aviation Policy Committee. This committee recommends flight standardization policies and procedures to the DCSOPS and the Chief of Staff, United States Army.

• **Aeromedical:** The focal point for all Army aviation medical and medical related actions on the Army Staff is the Aviation Staff Officer, Plans and Operations Division, Office of the Surgeon General. This officer functions as the aviation consultant within the Office of the Surgeon General, representing the Surgeon General for all aviation planning and staffing of issues impacting on the mission of Army aeromedical evacuation. Aviation personnel management—to include assignment recommendations, aviation school selections, and flight gate monitoring—are additional responsibilities of the Aviation Staff Officer (see "AMEDD Aviation Program," page 20).

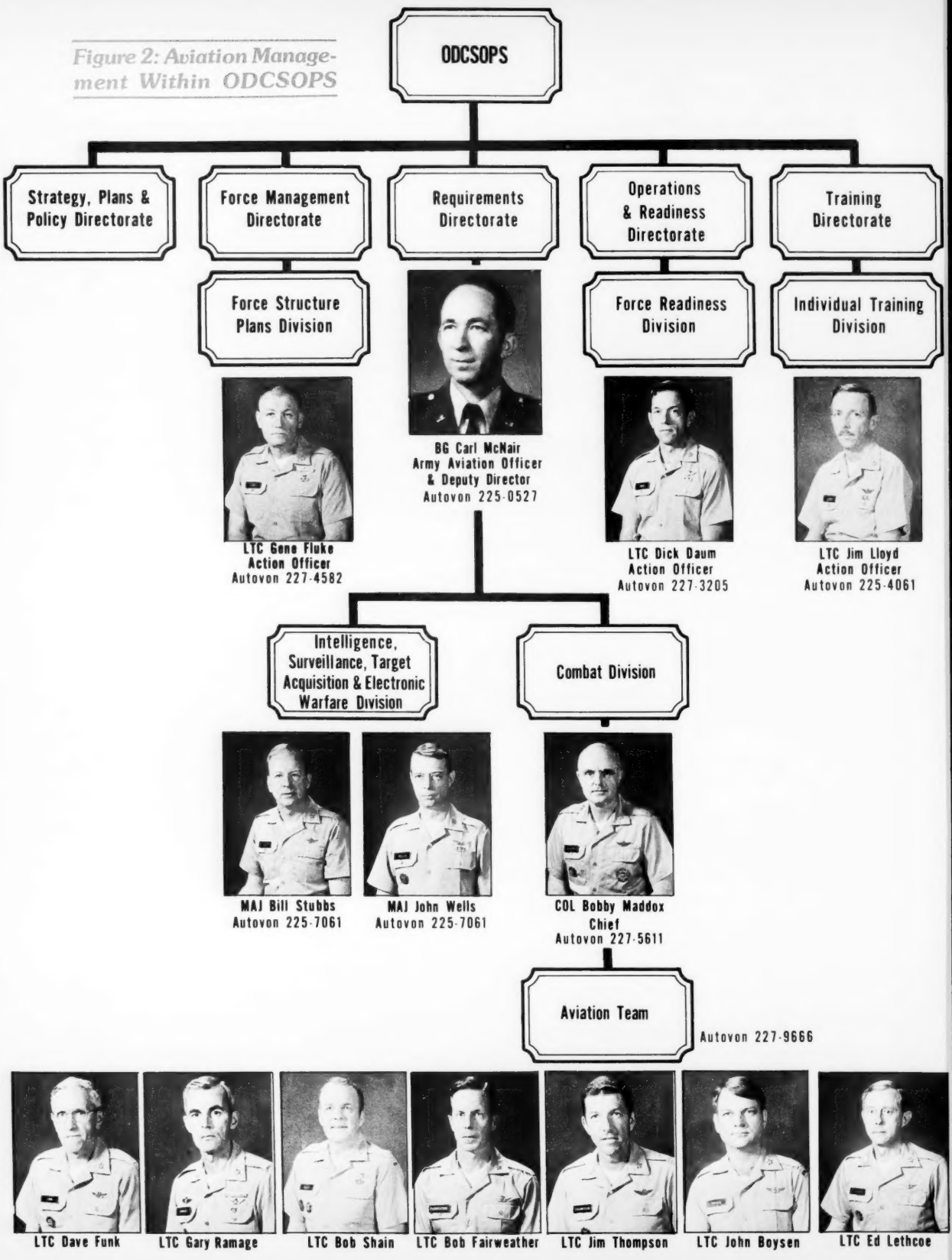
• **Staff Coordination:** Army aviation matters are routinely coordinated within the Army Staff and externally with the Office, Secretary of Defense; Office, Joint Chiefs of Staff; the Army MACOMs; and numerous other agencies. To enhance the internal coordination, the Army aviation officer chairs periodic staff coordination meetings which are attended by representatives of all Army Staff level agencies involved in Army aviation. This forum provides a medium for exchange of information, identification of problem areas and potential solutions, and monitoring the pulse of all elements of the aviation program.

Figure 1 graphically depicts the Army Staff, showing the organizations mentioned above. You must remember, though, that Army aviation is totally integrated within the Army Staff and many staff officers and supervisors who are not identified solely as "aviation" have a share in the management of Army aviation.

Now that I have described the "big picture," I will devote the remainder of this article to the aviation team that works within the ODCSOPS Requirements Directorate (figure 2).

Colonel Bobby J. Maddox, Chief of the Combat Division, Requirements Directorate, supervises Armor, Infantry and Aviation Teams that are responsible in their areas for combat developments, test and evaluation, and materiel acquisition management and monitorship. The Aviation Team serves as the coordination office for all aviation operational matters and monitors all

Figure 2: Aviation Management Within ODCSOPS



other aviation related programs. The team is composed of Force Integration Staff Officers (FISOs), each assigned specific responsibilities for aviation hardware systems and/or for areas of special aviation interest. The responsibilities held by this group are long, so I will only hit on the highlights.

The Aviation Team serves as the ODCSOPS aviation interface with Headquarters TRADOC (Training and Doctrine Command) and the TRADOC Centers on matters involving aviation combat developments. In this area, the FISOs analyze threat and capability information to determine capability gaps and requirements for new or product improved aviation systems. Each FISO tracks one or more systems that are in varying stages of development or procurement, or that already exist in the current force structure. Examples include flight simulators, avionics, the advanced attack helicopter (AAH), the advanced scout helicopter (ASH), the CH-47D, the UH-60, the C-12 and the OH-58.

The FISOs also are involved in: The initiation and monitoring of studies concerning aviation doctrine, organization and capabilities; the monitoring of force structure development to ensure integration of strategy, doctrine, organization and capabilities; and, the preparation and review of systems documentation that includes Basis of Issue Plans (BOIP), Required Operational Capabilities (ROC), Cost and Operational Effectiveness Analyses (COEA), Army Acquisition Objective (AAO) and Initial Issue Quantity (IIQ) printouts, Letters of Agreement (LOA), and a host of others. Additionally, the FISOs are concerned with rationalization, standardization and interoperability (RSI), Study Advisory Group (SAG) meetings, operational testing, establishment of ODCSOPS priorities, aircraft distribution plans, POM (Program Objectives Memorandum) input, ASARCs and DSARCs (Army and Defense Systems Acquisition Review Councils), and Congressional testimony. The FISOs also become the DA points-of-contact for anything that might fall into their areas, including systems program reviews, such as the 1978 Army Aviation System Programs Review.

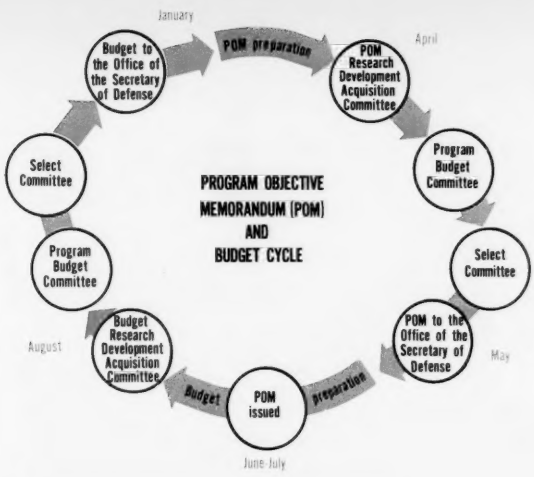


Figure 3: Program and Budget Cycle

The Aviation Team also serves as the Department of the Army action office to consolidate and assist in managing flying hours and is the Army Staff proponent for aviation facilities. Further, it is the Department of the Army action office for 12 civil aviation related awards, represents the Army on interagency and international working parties and committees, coordinates the Army flight standardization program, monitors the drafting of certain AR 95 series regulations, monitors airspace management and air traffic control, monitors aviation assets in TDA organizations, and promotes interservice helicopter commonality.

The Intelligence, Surveillance, Target Acquisition and Electronic Warfare Division, headed by Colonel Richard W. Mock, also has important aviation responsibilities within Requirements Directorate. Designated FISOs supervise and monitor the Standoff Target Acquisition System (SOTAS/EH-60B) program and the Special Electronic Mission Aircraft (SEMA) program, which includes the Mohawk (OV-1D), Quick Look (RV-1D), Guardrail (RU-21) and Quick Fix (EH-1H, EH-1X and EH-60A). The activities of these FISOs are similar to those described for the Aviation Team except that additional knowledge is required to keep up with the complex electronic systems involved.

As you can readily see, the aviation team within Requirements Directorate has a full basket of tasks and responsibilities. The pace is hard and fast and is driven by the demanding program and budget cycle which is the basis for Army management (figure 3), the efforts to defend the Army budget requests before Congress, and the need for sound coordination and attention to detail.

Good Army aviation management is important at all levels of the Army and is a true team effort. I am indeed proud to be part of the management team at DA and can assure you that we in aviation are ably represented at all levels and in all functional areas of the Army Staff. In this article I have provided for you some insights on how the Pentagon part of our team is organized and what it does, especially within ODCSOPS. The other fine articles in this issue give you even greater insights and a better understanding of how the Army Staff operates and the tremendous level of support and visibility enjoyed by Army aviation in the Headquarters, Department of the Army.

Aviation Training Management

LTC Jim Lloyd
Individual Training Division
ODCSOPS
Headquarters, Department of the Army

AVIATION TRAINING is the most expensive and one of the most time consuming programs in the Army. For that reason alone, it deserves careful management.

More importantly, however, the training of aviators requires careful management because the employment of Army aircraft in any future battle may well be the decisive factor which will give our ground tactical commander the advantage necessary to be successful.

It is becoming increasingly apparent that our potential adversary has developed an air assault and attack helicopter capability which rivals ours. Their aircraft and aerial weapons systems probably are on a par with ours. To overcome the technological parity which apparently exists, Army aviators must be better trained and more highly qualified and motivated than their adversary counterparts.

Just as we are training Soldiers in other military occupational specialties to fully exploit the capability of the weapons and other equipment with which they must fight, so must we train Army aviators to tactically employ the aircraft and aerial weapons which will have such a vital role in future combat operations. Quality training—that's what we are talking about—making Army aviators the most technically and tactically proficient flyers in the world.

At the Department of Army (DA) level the Aviation Training Manager assists in the development and presentation of high quality training through efforts primarily related to programing necessary resources to conduct that training. Almost every change which is made in the Program of Instruction (POI) at the Aviation Center at Ft. Rucker, AL costs something: money (increased flying hours, more ammunition, training aids, etc.) and/or people (instructor pilots, academic instructors, support and center staff personnel).

The expense involved with curriculum modifications varies with the extent of the change. Several years ago there was a major change in the POI. Initial Entry Rotary Wing (IERW) students began receiving training that was much

Army aviator wings for the distinguished graduates of the rotary wing aviator classes at Ft. Rucker. WO John Hight of Nashville, TN receives his from BG (P) James H. Patterson, left, who completes his tour as Ft. Rucker's deputy commanding general this month, while 1LT John Lidh of Tampa, FL has his pinned on by BG James H. Mapp, assistant commander, 1st Cav Div

Traditional helicopter formation fly-by at the Army Aviation Center performed by students prior to their graduation as officer or warrant officer aviators

more attuned to the development of combat skills. The old 180-flight-hour and 20-simulator-hour syllabus was replaced by 175 flight and 40 simulator hours. Internally, the flight periods and accompanying academic instruction shifted the emphasis from traffic pattern flying to tactics.

The UH-1FS (2B24) simulator provided a vastly improved instrument training capability. Through the use of the SFTS (Synthetic Flight Training System) and tactically oriented flight and academic instruction, the Aviation Center produced better quality aviators; commissioned or warrant officer pilots capable of rapidly becoming valuable assets to their operational units. That was an improvement, a step forward, qualitatively.

Changing a 180/20 program to a 175/40 syllabus may not on the surface appear to have been a major innovation, and therefore might not be thought of as being costly. It was both! The UH-1FS costs upward of $3 million per device. Increasing the number of UH-1 flying hours to achieve the combat oriented training in the 175/40 program costs money for aviation gas, contract maintenance and repair parts.

The Aviation Training Manager had to program and budget for these expenses. He ensured that improvements desired in the training of aviators were funded and quickly learned that, "there are no free lunches"; "we don't get something for nothing"; "and all things are bought with a price." The Aviation Training Manager appreciates those trite but true statements and it is his lot in life to identify the price which must be paid for effective, combat oriented training and to fight for aviation's fair share of the training budget.

Preparation for combat is a dynamic business. Training initiatives respond to evolutions in tactics and technology, and they cost money and people. Justifying both the money and people is part of the job — DA Aviation Training Management.

The other major responsibility of the Training Manager at the DA level is to program the resources necessary to accommodate the student training rates which are developed in response to total force structure requirements. The number of aviators the Army trains each year is painstakingly derived through a process which compares the current force with what will be needed in years to come.

Changes in the aviation unit structures and the addition or reduction of the number of units is the basic factor which drives the Army aviation training rate. Deputy Chief of Staff for Operations and Deputy Chief of Staff for Personnel action officers "work" this problem jointly. The Military Personnel Center (MILPERCEN), using anticipated attrition factors, developed over years of experience, and relatively constant force aging and promotion data, is able to accurately forecast the number of aviators, by grade, that will be in the force at any particular point in time. If this number does not satisfy the force structure requirements, the IERW training rate must be increased. Increasing the training rate has many, many implications. *First and foremost is cost!*

A new training rate generates questions such as: Can this new student training load be physically accommodated at the Aviation Center, e.g., is there sufficient airspace, are there enough stagefields and basefields, can the classrooms and simulators handle the programed increase? If not, how much money and leadtime for construction and upgrade will be necessary? What are the personnel implications?

What are the requirements for instructors, staff and supervisors, medical personnel, contractor and Department of Army Civilians? All of these and other questions must be asked and answered.

The Commanding General of the Aviation Center and his staff develop the answers. Costs, leadtimes, personnel requirements, numbers of aircraft and simulators are computed and forwarded through Training and Doctrine Command (TRADOC) to the DA Aviation Training Manager. The numbers are verified or adjusted as necessary by the personnel, logistic and budget staffers.

A total cost to support the required training rate is developed. Plans to shift personnel and aircraft are formulated. Military construction is examined for cost and feasibility and a total resource package is put together by the Training Manager. This procedure was completed by the Army staff last May. Earlier, as a result of many factors, principally a recognized shortfall in commissioned officer aviators and because of the personnel implications of Specialty 15 decisions, it was determined that, beginning in fiscal year (FY) 1981, the Army needs to annually train more commissioned officer aviators.

The Director of Resource Management at the Aviation Center, with guidance from DA and TRADOC, and in coordination with the other directorates at the Aviation Center, prepared documents to answer all of the questions relating to the cost associated with that training rate. The resource requirements were "staffed" at TRADOC and DA. Decisionmakers at the DA headquarters compared the costs with the cost of other training and procurement and concluded that the cost was justified. Thus, the Army Program Objective Memorandum (POM) contains a requirement to train at the increased rate. The POM displays costs associated with these rates.

WO Paul M. McQuain displays the AUSA Leadership Plaque and Certificate of Achievement he received during aviator graduation ceremonies at Ft. Rucker. His wife, Barbara, left, and his mother, Mrs. Juanita J. Pasierb, change his insignia from student to warrant officer

The Army's training rate must be approved at the Department of Defense level. If it is, the necessary funds will be included in the President's FY 1981 budget. MILPERCEN will identify and order the additional personnel needed to conduct the training at the Aviation Center.

The Training Manager "tracks" and coordinates this action from beginning to end. He must be able to justify the expenditure of every dollar and must be able to explain why the money and people are needed. Decisionmakers normally are interested in knowing the consequences of not funding a program. The Training Manager explains them.

The quality and quantity of aviation training are the Training Manager's principal areas of staff responsibility. Interspersed within those major areas of concern are such diverse things as coordination of Individual Ready Reserve aviation training; planning and programing for UH-60 Black Hawk transitions; and coordination of all actions which have resulted from the Defense Department decision to consolidate helicopter pilot training for all the services at Ft. Rucker.

The Aviation Training Manager has a hefty workload. Army aviation now is fully integrated into the combined arms team and the Army is counted upon to provide the firepower and mobility which will be so vital on the future battlefield. Army training developers have devised new ways to employ aircraft in the high threat environment. These are advertised Armywide, pointing out that Army aircrews can not only survive on the high threat battlefield, but they also can provide the "something extra" which may mean the difference between victory and defeat.

High quality training, given to the correct number of people can be the "something extra." Our ground contemporaries are relying on Army aviation, and we will not let them down.

Aviation Systems Division

LTC George Sibert
Aviation Systems Division
ODCSRDA
Headquarters, Department of the Army

THE AVIATION SYSTEMS Division, Weapons Systems Directorate, of the Office of the Deputy Chief of Staff for Research, Development and Acquisition (ODCSRDA), provides the Headquarters, Department of the Army (HQDA) staff with supervision, management and direction of Army aviation research, development and acquisition. The major function of the division as described in the appropriate Chief of Staff Regulation (CSR 10-24) is budget formulation of the Aircraft Procurement, Army (APA) and Research, Development, Test and Evaluation, Army (RDTEA) for aviation systems. These include aircraft programs (e.g., AH-64, UH-60, CH-47, advanced scout helicopter (ASH), AH-1, Special Electronic Mission Aircraft (SEMA)), aeronautical technology (propulsion, structures and aero mechanics), armament (HELLFIRE (helicopter launched fire and forget missile), guns, rockets and ammunition), avionics (less combat surveillance), safety, survivability and life support equipment, airdrop equipment, aircraft electronic warfare self-protection equipment, cargo handling equipment, ground support equipment, flight simulators, production base support including manufacturing methods and technology (MMT). If this sounds like quite a shopping list, it is!

Budget formulation, you say. What is that? It is a rather lengthy and somewhat complex process which begins about 18 months before the submission of the President's budget to Congress in January. For example, the budget for fiscal year 1980 which went to Congress in January 1979 had its beginning in August and September, 1977.

Early in the process a meeting is held at which representatives of ODCSRDA, Office of the Deputy Chief of Staff for Operations and Plans (ODCSOPS), U.S. Army Materiel Development and Readiness Command (DARCOM), U.S. Army Training and Doctrine Command (TRADOC), Office of the Deputy Chief of Staff for Logistics (ODCSLOG) and U.S. Army Aviation Research and Development Command (AVRADCOM) reach a general consensus on the program thrust and content. This is followed by formulation of the Program Objective Memorandum (POM), which is reviewed and approved by the Research Development and Acquisition Committee (RDAC) and ultimately goes to the Office of the Secretary of Defense (OSD) in May. Issues are forthcoming from OSD and ultimately resolved. The process more or less repeats itself in the budget cycle prior to the actual submission to Congress in January.

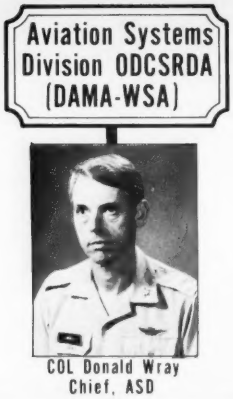
A common misconception is the role of Department of Army (DA) in this process. Many aviators in the field believe that DA, in our case the Aviation Systems Division for Army Aviation RDTE and procurement, provides or takes away the money for programs almost at the whim or personal preference of the action officer or the general for whom the officer works.

For example, at the recent OV-1D Users Conference, 7 to 9 May 1979 in Stuart, FL, some participants viewed the DA Systems Coordinator (DASC) for SEMA in this light. As was pointed out then, the DASC is but one player and is dependent on the users to determine priorities and the importance of those priorities in the allocation of funds.

The Aviation Systems Division works closely with the Combat Division in the Requirement Directorate, ODCSOPS, and responds directly to the priorities determined by TRADOC in formulation of the RDTE and APA portions of the President's budget. In fact, conferences such as the one for OV-1D users provide exactly the kind of user input so vital to the system. The product improvement of Army aircraft easily can become a most impersonal and bureaucratic paper process. However, when representatives from DA, DARCOM, TRADOC, AVRADCOM, and U.S. Army Troop Support and Aviation Materiel Readiness Command (TSARCOM) meet unit commanders from U.S. Army Europe (USAREUR), Korea and Alaska as well as the Continental United States (CONUS), the true need for the product improvement program (PIP) takes on its personal nature. Ultimately, the results of such a users conference are translated into TRADOC and ODCSOPS priorities

See Abbreviations Next Page

Figure 1
Aviation Systems Division Teams



North Atlantic Treaty Organization and Joint Agencies
Congress and Staff
U. S. Army Materiel Development & Readiness Command & Subordinate Commands
Office of the Secretary of Defense
DASC
U.S. Army Training & Doctrine Command & Centers
Army Secretariat
Program/Project Manager
Headquarters, Department of the Army Staff and Operating Agencies

Figure 2: DASC Communications

by which the PIP competes for dollars within a highly constrained total Army program.

The Aviation Systems Division is organized into three teams: the Aircraft Team, the Technology and Support Team and the Budget Team. The Chief of the Aviation Systems Division is COL Donald P. Wray (see figure 1). There have been a few personnel changes since the report in "Reporting Final" in the October 1978 *Aviation Digest.* The division's administrative element includes Mrs. Georgeanna DiSalvo, the chief clerk, and Mrs. Merylee Norton, Mrs. Phyllis Newlon, Mrs. Geneva Collins and Ms. Joanie Feggins, the secretaries. Their administrative and clerical support contributes immeasurably to the division's mission.

Abbreviations	
AAH	advanced attack helicopter
AATCH	airdrop, air transportability, cargo handling
AH-1S	Cobra with tube-launched, optically-tracked, wire-guided (TOW) missile
AHOAG	Attack Helicopter Operations Analysis Group
ALSE	aviation life support equipment
ASD	aviation systems division
ASE	aviation support equipment
ASH	advanced scout helicopter
ATC	air traffic control
DASC	Department of the Army Systems Coordinator
FMS	foreign military sales
HELLFIRE	Helicopter Launched Fire and Forget
MM&T	manufacturing methods and technology
Mod	modernization
NATO	North Atlantic Treaty Organization
RDTE	research, development, test and evaluation
SEMA	special electronic mission aircraft
SFTS	Synthetic Flight Training System
T&S	technology and support
Tech	technology

In addition to these fulltime members of the division, the following U.S. Army Reserve (USAR) mobilization designees serve 2-week stints each year, contributing to Army aviation now while preparing for mobilization service: COL Reagan Vestal Jr., LTC Donald Ball, LTC Robert Kaplan, LTC Aadu Karemaa, MAJ James Bynum, MAJ Garret Roosma and MAJ Edward Schmidt.

The Aviation Systems Division works closely with the other HQDA staff agencies discussed in separate articles in this month's *Aviation Digest.* Daily contact occurs with DARCOM, AVRADCOM and TRADOC headquarters and other subordinate commands. This keeps both formal and informal channels of information open and contributes to the coordination required to ensure a close knit program.

The Aircraft Team and Technology and Support Team action officers are formally known as Department of the Army Systems Coordinators (DASCs). The DASC is the individual designated by the DCSRDA

Continued on page 33

Aviation Logistics Office

LTC Duke Vasey
Aviation Logistics Support Officer
ODCSLOG
Headquarters, Department of the Army

THE AVIATION Logistics Office, Office of the Deputy Chief of Staff for Logistics (ODCSLOG), serves as a single coordinating and monitoring staff agency for initiating and implementing logistics concepts, policies, practices and techniques peculiar to Army aviation.

The Aviation Logistics Office serves as the Army Staff focal point and principal spokesperson and advisor for Army aviation logistics and provides:

DSCLOG with the technical expertise needed to maintain visibility and control of the entire Aviation Logistics Program as a weapons system, to include: interface with research and development, materiel acquisition, training, personnel, operations, logistic support of aeronautical materiel for all U.S. and foreign armed forces, and the capability to initiate intensive management when required.

An implied mission is the fundamental requirement to ensure continuity between existing and planned aviation maintenance and supply programs. Management of Army aviation assets is accomplished through a vertical management system, closely interrelated within the Army Staff and all the way down to user level via a life-cycle development and support system.

The life-cycle development and support system is oriented on the user to make sure that the latest technological advances are incorporated into new and existing hardware and logistic programs to improve the safety, reliability and maintainability of current and planned aircraft and their subsystems. The success of the life-cycle development and support system is reliant on effective visibility and communication from user to policy level and vice versa.

The Aviation Logistics Office traces its origin to January 1963, when the Special Assistant for Tactical Air Mobility was established in ODCSLOG. This office was to pull together all information and data needed concerning aviation logistics. Responsibility was vested in the various functional elements of ODCSLOG and in essence it became a readiness project office for Army aviation until it was disestablished in July 1966.

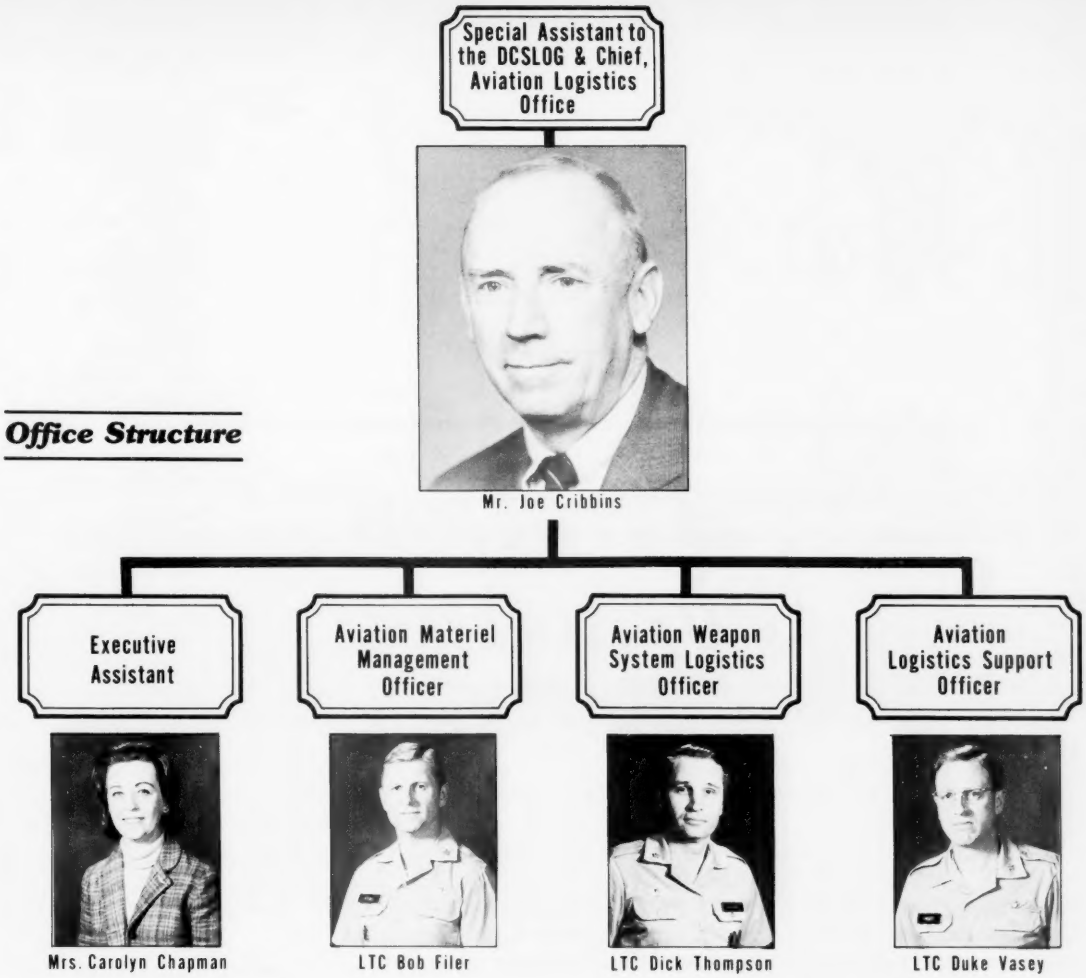
In January 1967, the Army Vice Chief of Staff approved the establishment of the Office of Special Assistant for the Logistical Support of Army Aviation (OSALSAA), which was responsible for monitoring all aviation logistic matters throughout the Army. It later was reorganized into a directorate with full line authority for all aviation logistic matters. Today the Aviation Logistics Office is organized as follows:

• **Special Assistant to the DCSLOG and Chief, Aviation Logistics Office.** Mr. Joe Cribbins represents the DCSLOG in developing concepts and policy and evaluating materiel condition standards of Army aeronautical equipment worldwide, and serves as the Headquarters, Department of the Army single point of contact for providing logistics information and direction to Army Staff elements, major commands and management agencies.

• **Executive Assistant.** Mrs. Carolyn Chapman is Mr. Cribbins' personal representative for initial contacts with Army Staff, major commands, and management agencies concerning briefings and conferences and is solely responsible for administrative management functions.

• **Aviation Materiel Management Officer.** LTC "Bob" Filer is the ODCSLOG General Staff Officer for Army aviation logistics programs as they pertain to supply, maintenance, transportation, readiness criteria, Program Budget Guidance and Program Objective Memorandum. He serves as Assistant to the Special Assistant to the DCSLOG and alternate to the Chief, Aviation Logistics Office for actions di-

Office Structure


Special Assistant to the DCSLOG & Chief, Aviation Logistics Office
Mr. Joe Cribbins
Executive Assistant
Aviation Materiel Management Officer
Aviation Weapon System Logistics Officer
Aviation Logistics Support Officer
Mrs. Carolyn Chapman
LTC Bob Filer
LTC Dick Thompson
LTC Duke Vasey

rected by the DCSLOG. LTC Filer is responsible for Aviation Requirements for Combat Structure of the Army, Three Level Maintenance, Reliability Centered Maintenance, On Condition Maintenance, Phased Maintenance, Inter-Service Support Agreements, aircraft distribution and loan and bailment. Additionally, he is responsible for supervision of the Worldwide Aviation Logistics Conference (WALC).

• **Aviation Weapon System Logistics Officer.** LTC "Dick" Thompson is the ODCSLOG General Staff Officer for Army aviation weapon systems programs. He interfaces with major commands and management agencies concerning logistic aspects of new aviation materiel and integrated logistic support, and evaluates Army aviation programs to include reliability, availability and maintainability concepts and maintenance engineering factors by ensuring that logistics considerations are integrated into the design effort on developmental and product improved systems during the materiel acquisition process.

• **Aviation Logistics Support Officer.** LTC "Duke" Vasey is the ODCSLOG General Staff Officer for Army aviation logistic concepts, policies, programs and procedures to include: interface with ODCSOPS, ODCSPER, ODCSRDA, the Offices of the Deputy Chiefs of Staff for Operations and Plans; Personnel; Research Development and Acquisition; the Department of the Army Inspector General; and the Army Secretariat for Army aviation matters involving training, operations and safety, personnel requirements and manning and readiness. Additionally, he prepares direction for Army logistics objectives and thrust items, and coordinates efforts of special study groups pertaining to the use of enlisted aviation maintenance personnel on the Army staff.

Aviation Personnel Policy

LTC Dave Carothers
Military Personnel Management
Directorate, ODCSPER
Headquarters, Department of the Army

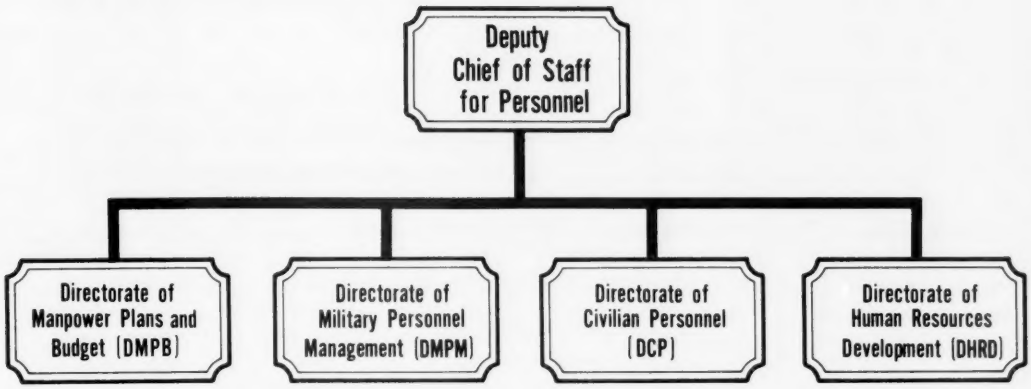
THE DEPARTMENT of the Army General Staff responsibility for Army aviation plans, policies and programs which relate to manpower authorization and the management of active and reserve component aviation policies belongs to the Deputy Chief of Staff for Personnel (DCSPER). Additionally, a recent reorganization within the Army Staff, centralized the Army Safety Program within ODCSPER.

The DCSPER is the functional chief for research and development programs which integrate manpower requirements and human factors connected with weapons systems, and it further centrally manages the life cycle of initial clothing allowance items. Staff responsibility for Army aviation personnel issues is diversified throughout the directorates and field operating agencies of ODCSPER (see figure). These issues include formulation of training rates, personnel readiness, clothing and equipment and personnel management policies. Field operating agencies under staff supervision of ODCSPER are:

- U.S. Army Military Personnel Center
- U.S. Army Reserve Components Personnel and Administrative Center
- The Adjutant General Center
- Department of Army Suitability Evaluation Board
- U.S. Army Civilian Personnel Center
- U.S. Army Civilian Appellate Review Agency
- U.S. Army Recruiting Command
- U.S. Army Military Enlistment Processing Command
- U.S. Military Academy
- U.S. Military Academy Preparation School
- U.S. Army Research Institute for Behavioral and Social Science
- U.S. Army Drug and Alcohol Technical Activity
- U.S. Army Safety Center
- U.S. Army Physical Disability Agency

The aviation functions centralized within the Directorate of Human Resources Development (DHRD) include policy formulation for incentive pay and staff supervision of the Army Safety Center at Fort Rucker, AL. In December 1978, the Army Staff safety functions were transferred from the Inspector General to ODCSPER. The Army Agency for Aviation Safety assumed all Army staff safety functions and was redesignated the Army Safety Center, a field operating agency in ODCSPER under DHRD. This transfer of staff supervision responsibility centralized within ODCSPER the general safety program as well as the aviation safety program.

The personnel services division



Personnel Directorates

within DHRD has Army staff responsibility for establishing policy and proposing legislation concerning compensation and entitlements. The Aviation Career and Incentive Pay Act (ACIA) of 1974 and ongoing quad-service groups established to develop new initiatives in compensation and entitlements are part of that division's responsibility. Major Jim Malone serves as the Army representative and point of contact regarding flight incentive pay and is the Army representative on quad-service study groups. He also is the point of contact (POC) for all issues concerning flight pay determination. As the ACIA POC, he responds to inquiries from governmental "watch dog" agencies, i.e., General Accounting Office and Army Audit Agency, regarding implementation of the act.

The Authorization and Documentation Division of the Directorate of Military Personnel Management (DMPM) evaluates the aviation force structure authorizations for operational flying requirements. It is responsible for developing policy and procedures for implementing the ACIA legislation as it applies to documenting operational flying positions.

The DMPM establishes Army policy for the management of active

Lieutenant Colonel Dave Carothers

component officers and enlisted personnel; is responsible for developing the general personnel management policies; exercises staff supervision of the Officer Personnel Management System (OPMS) and enlisted career management fields. It also develops officers/enlisted personnel in the right numbers with the right skills to satisfy Army requirements. Once the personnel are available (see the training article on page 6) policies are developed within the budget limits to ensure that Army requirements are carefully balanced with the needs of the individual.

Current trends in tactical aviation doctrine, constrained training rates and increasing aviation requirements have driven the Army personnel managers to reevaluate using company grade aviators within OPMS. The Commanding General, U.S. Army Military Personnel Center (MILPERCEN) implements the personnel management system (see "Aviator Management," page 16).

Aviator Management

MAJ William B. Leonard III
Chief, Aviation Plans and Programs Branch
Officer Personnel Management Directorate
Headquarters, Department of the Army

NEW MANAGEMENT for aviators is underway within the Military Personnel Center (MILPERCEN). Hopefully by now most of you have read about or perhaps received a briefing on the new career management program for commissioned aviators recently approved by the Army Chief of Staff. The decision and its major implications were discussed in the OPMS Corners of the April and May issues of the *Aviation Digest* [a limited number of these issues are available and can be obtained by writing the *Aviation Digest* at P.O. Drawer P, Ft. Rucker, AL 36362].

The cornerstone of Army aviation today is its recognition as a full member of the combat arms, having primarily a combat maneuver role as part of the combined arms team. Essential to the accomplishment of this primary mission are the combat support and service support roles within the total aviation program: maintenance, intelligence and medical. Our personnel management policies and procedures are being revised to support this new direction for Army aviators as is our management organization within the Officer Personnel Management Directorate (OPMD).

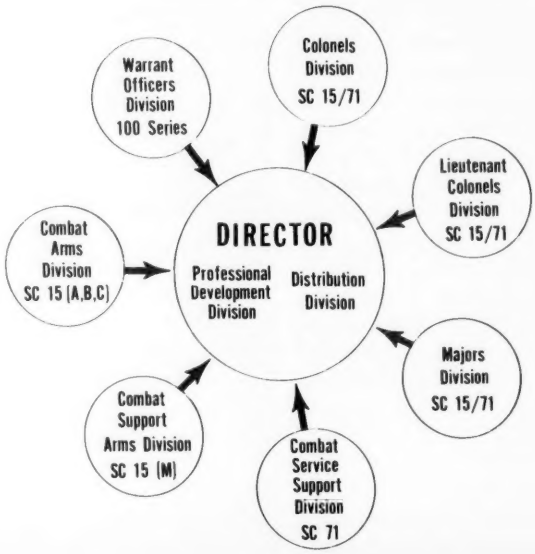
This articles reviews some of the key features of each aviation specialty and shows you where every commissioned aviator fits into the OPMD career management structure. Figure 1 depicts a management process rather than an organizational structure (each division chief works for the director of OPMD). Individual training and assignment decisions are made by specialty career managers in each of the graded management divisions in the figure. In making these decisions each division uses the developmental guidelines in DA Pamphlet 600-3 (Officer Professional Development), individual preferences, and procedural guidance from both Professional Development Division (PD) and Distribution Division (DD). Both divisions interface closely with the offices of the Deputy Chiefs of Staff for Personnel and Operations, who together establish the policies employed by MILPERCEN in the management of all Army officers.

PD continually monitors the status of each officer specialty against the objectives of the Officer Personnel Management System (OPMS); administers military and civilian training/education programs; and provides career development guidance and support to the officer management divisions.

DD, using Department of Army established priorities, develops the Officer Distribution Plan (ODP) used by the management divisions to equitably assign their officers worldwide to meet Army requirements. There are, of course, many other functions that each of the OPMD divisions performs in effecting the best possible management program for Army aviators. However, this brief overview should give you an idea of how they all work together to get the job done.

Specialty Code 15, Aviation. Specialty Code (SC) 15 is the primary

Figure 1: Aviation Management Branch


Warrant Officers Division 100 Series
Colonels Division SC 15/71
Lieutenant Colonels Division SC 15/71
Combat Arms Division SC 15 (A,B,C)
DIRECTOR
Professional Development Division
Distribution Division
Majors Division SC 15/71
Combat Support Arms Division SC 15 (M)
Combat Service Support Division SC 71

aviation specialty, accounting for 80 percent of the total requirements for commissioned aviators. Within this specialty there are four special skill areas. Those described below are being proposed as a change to the current aviation special skill identifiers (SSIs) listed in AR 611-101. Code 15A (General Aviation) identifies positions for instructors at aviation training centers, advisors to Army readiness regions and commanders and staff officers for Army airfields and various types of TDA (tables of distribution and allowances) flight detachments. Code 15B (Combat Aviation) identifies positions for commanders and staff officers in assault helicopter, air cavalry, attack helicopter and combat aviation units. Code 15C identifies positions in air traffic control, assault support helicopter and general support helicopter units. These special skill areas are associated only with the Infantry, Armor, Field Artillery and Air Defense Artillery branches and their respective officer basic and advanced courses.

The creation of an Aviation Management Branch within the Combat Arms Division (CAD) is the initial step effecting company grade aviator management under the new career pattern. By 1 August 1979 *all* company grade aviators (about 2,400 officers) having SC15 as one of their specialties (excluding Military Intelligence (MI) aviators) will be managed in the organization and by the personnel in figure 1. The new management branch will be responsible for programing training and assignments necessary to meet the requirements for aviators to fill 15A, B and C positions worldwide.

This means that the career management files of those SC15 aviators in a combat support or service support branch will be transferred to the Aviation Management Branch, CAD. Those officers will have the

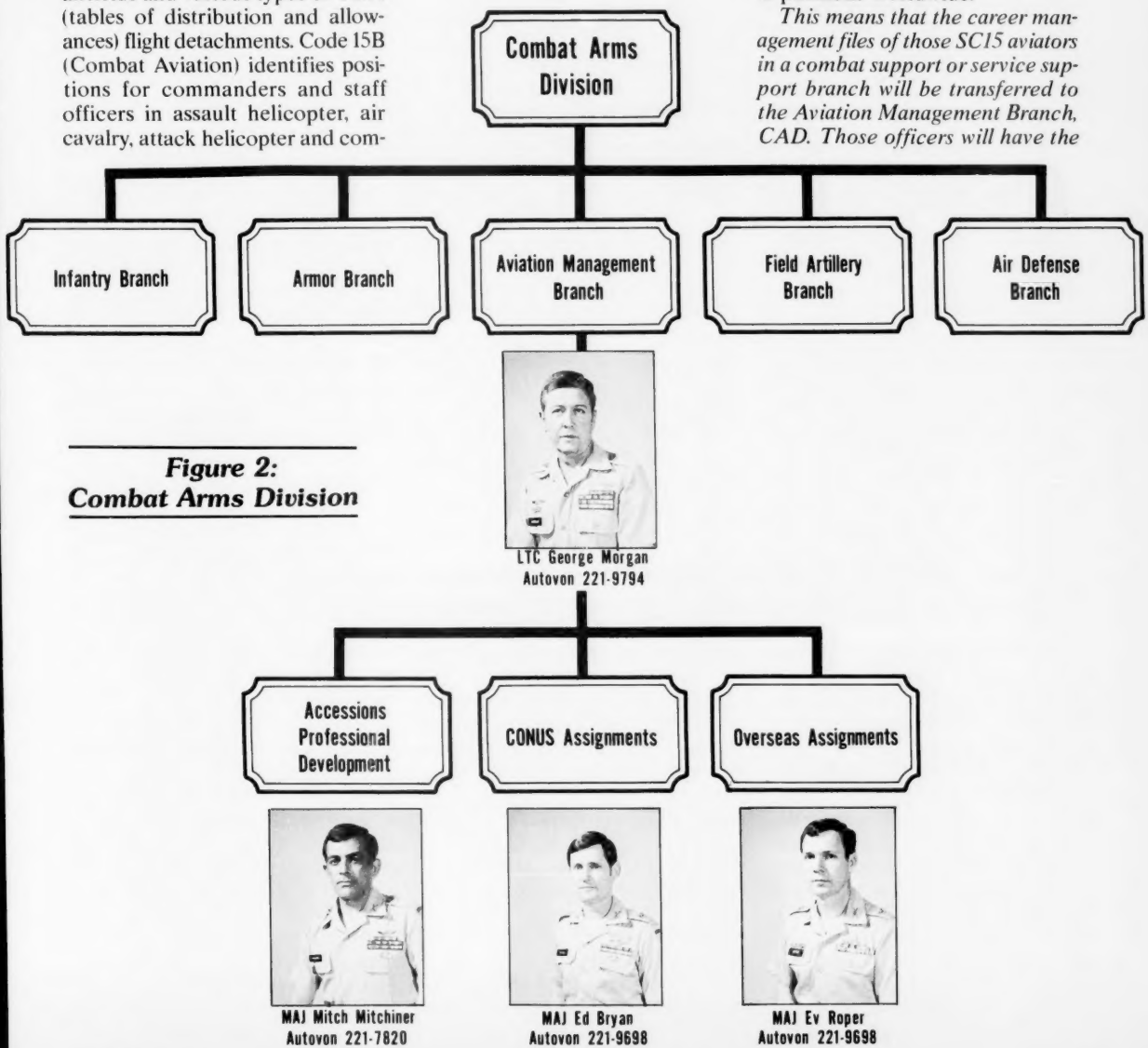
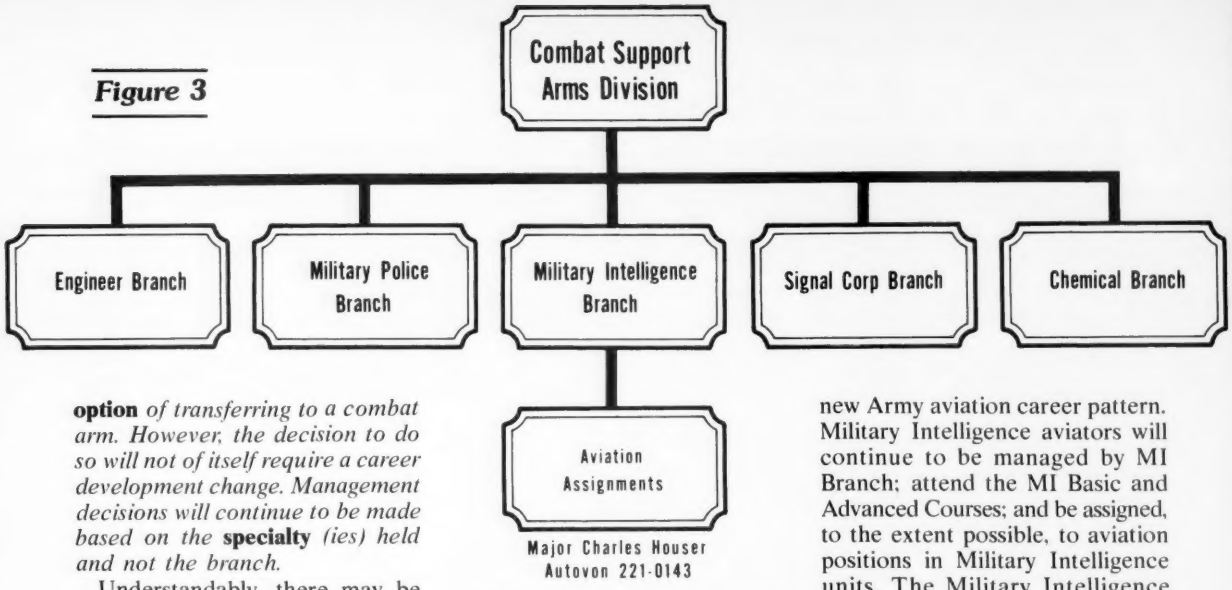


Figure 2:
Combat Arms Division

Figure 3



option *of transferring to a combat arm. However, the decision to do so will not of itself require a career development change. Management decisions will continue to be made based on the* **specialty** *(ies) held and not the branch.*

Understandably, there may be many questions concerning the details of this reorganization and the new professional development objectives for SC15 aviators. Everything possible will be done to keep you informed of our progress and to ensure there is no interruption in your professional development. Your questions and/or comments are encouraged and we look forward to meeting personally with you either at MILPERCEN or during field visits.

Military Intelligence Branch aviators will be designated specialty 15 to fill positions coded with the fourth special skill identifier of 15M. They will continue to be managed in the Military Intelligence Branch, Combat Support Arms Division, OPMD.

Newly commissioned 15 "Mikes" will be trained as Military Intelligence aviators for assignment during their company grade years in intelligence aviation units or as intelligence staff officers in combat aviation units. Prior to flight school, new MI lieutenants will attend the MI Officer Basic Course at Fort Huachuca, AZ. This course includes follow-on attendance at either the tactical/strategic intelligence officers course (35A), tactical surveillance officers course (35C) or the EW/Cryptologic tactical operations course (37A) at Ft. Devens, MA.

After flight school, MI commissioned aviators will, to the extent possible, be assigned to aviation positions in MI units. Normally, those aviators who attended the 35A or C course will be assigned to tactical surveillance aviation units such as the 15th MI Battalion (Aerial Surveillance) at Ft. Hood, TX and the 2d MI Battalion (Aerial Surveillance) in Germany.

In most cases, officers who attended the 37A course at Ft. Devens will be assigned to EW/Cryptologic aviation units such as the 330th ASA Co in Germany and the 146th ASA Co in Korea.

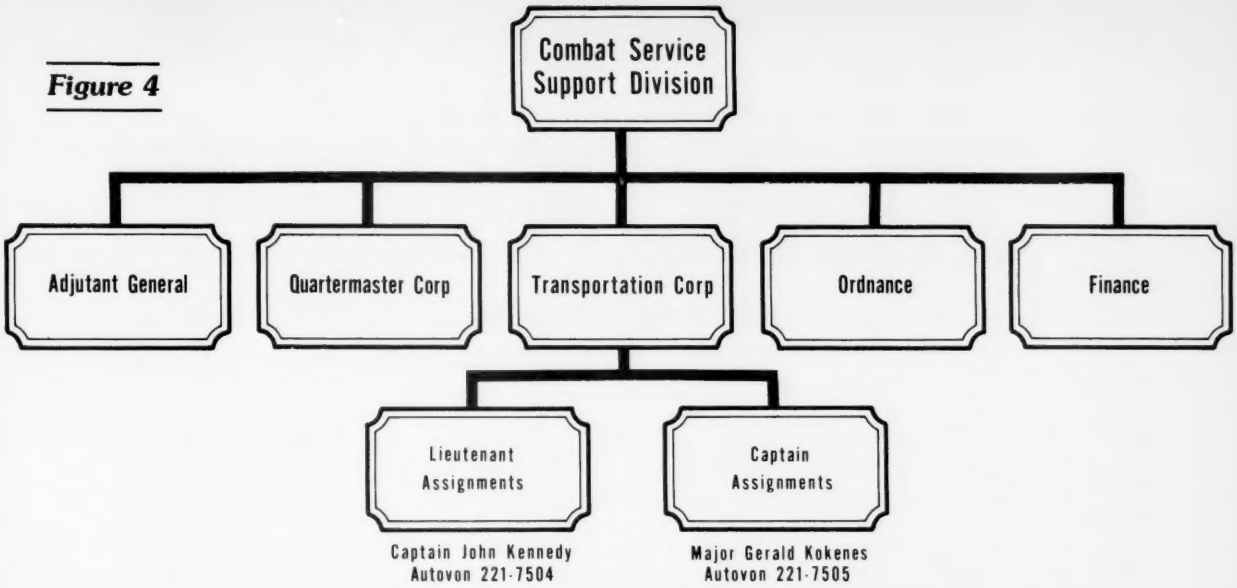
Between the 4th and 8th year of service, MI commissioned aviators will attend the MI Officers Advanced Course at Ft. Huachuca. Until the captain shortage is resolved, MI aviators, like their combat arms counterparts, will of necessity spend most of their company grade years in aviation positions. However, prior to consideration for promotion to major, MI commissioned aviators will be considered for initial development in another OPMS specialty. Actual assignment to such duties will be dependent on the Army's ability to meet its overall aviation requirements at the time.

Very few changes for MI aviators are anticipated as a result of the new Army aviation career pattern. Military Intelligence aviators will continue to be managed by MI Branch; attend the MI Basic and Advanced Courses; and be assigned, to the extent possible, to aviation positions in Military Intelligence units. The Military Intelligence Branch in Combat Support Arms Division currently manages about 180 commissioned aviators. The organization and aviation assignment officer is shown in figure 3.

Specialty Code 71, Aviation Materiel Management. Specialty 71 will remain a basic entry specialty for commissioned officer aviators assigned to the Transportation Corps. Second lieutenants designated specialty 71 attend Army flight training following completion of the TC Officer Basic Course at Ft. Eustis, VA. Upon completion of flight training specialty 71 officers attend the Aviation Maintenance Officer Course (AMOC) at Ft. Eustis. AMOC is 14 weeks in duration and provides the aviator the technical knowledge required to accomplish maintenance test flights and quality assurance on Army aircraft.

Flight school and AMOC represent the basic schooling qualifications for specialty 71. Officers designated SC 71 can continue to anticipate involvement in all phases of the life cycle management of aviation materiel. This involvement includes production control; inventory control; storage, distribution, maintenance and supply of Army aircraft and related component systems. Duties for an officer with specialty 71 include: service platoon

Figure 4



leader commander of units engaged in aviation unit maintenance (AVUM); aviation intermediate maintenance (AVIM) or depot level maintenance; aircraft maintenance officer; aircraft supply officer; and aviation materiel staff officer.

Basically there will be little change in the career pattern for SC 71 officers. They will continue to be managed by the aviation assignment officers within the Transportation Branch, Combat Service Support Division (CSSD), depicted in figure 4.

The Transportation Branch currently manages about 650 company grade SC 71 aviators.

Specialty Code 67, Aeromedical Evacuation Officer (Special Skill Identifier 67J). The 3rd aviation specialty falls under the jurisdiction of the Surgeon General and encompasses those positions relating to aeromedical evacuation. An officer possessing this specialty must be branched in the Medical Service Corps (MSC). MSC aviators are routinely rotated between aviation positions and ground medical related positions throughout their careers. Functions and duties of this specialty include: 1) commanders of aeromedical detachments, companies and battalions; 2) staff officers in field and installation hospitals; 3) hospital administrators; 4) hospital commanders; 5) medical supply officers; and 6) medical operations officers.

The 67J career manager within the Office of the Surgeon General is LTC William S. Carroll, AUTOVON 227-1469/1439.

Although their organizations remain the same, we would be remiss in not identifying the field grade aviator assignment officers:

Majors Division:

Specialty 15: MAJ Floyd E. Edwards, AUTOVON 221-0686/0687

Special 71: MAJ Larry D. Holcomb, AUTOVON 221-8121/8123

Lieutenant Colonels Division:

Specialty 15: LTC William E. Bacon, AUTOVON 221-9789/9793

Specialty 71: LTC Patty E. Brown, AUTOVON 221-0422/7898

Colonels Division:

Specialty 15: COL Robert J. Frazier Jr., AUTOVON 221-7862/7863

Specialty 71: COL FLoyd B. Mayes Jr., AUTOVON 221-7875

Hopefully, we have provided some insight as to how the management function will be organized to implement the full intent of the Aviation Career Pattern decision. In future issues of the *Aviation Digest* in the OPMS Corner there will be considerable discussion of the actual professional development policies and procedures that OPMD aviation assignment officers will be using to make training and assignment decisions *with* every aviator.

Your interest and actual participation in the new program is essential to its becoming a career pattern that meets both Army and individual needs. Get on board with your career manager soon if you haven't already. Don't stay in the dark on these important areas affecting your Army career.

Major Leonard

AMEDD Aviation Program

LTC William F. Carroll
Aviation Staff Officer
Office of the Surgeon General
Headquarters, Department of the Army

THE ARMY MEDICAL Department (AMEDD) Aviation Program evolved from the Korean War, during which the AMEDD organized its first air ambulance units which used mostly OH-13 Sioux helicopters. These "Angels of Mercy" teamed up with Mobile Army Surgical Hospitals (MASH) to save hundreds of lives.

In the Vietnam War, the air ambulance evacuation system came into its own in the form of Dustoff, and again hundreds of Soldiers lives were saved thanks to Army UH-1 Huey medical evacuation helicopters.

Today civilian lives are being saved around the clock by air ambulance units within the Continental United States (CONUS). These units are actively participating in the Military Assistance to Safety and Traffic (MAST) Program. They are commanded by Medical Service Corps (MSC) aviators, a unique group of professional pilots.

The versatility of the Army air ambulance makes it the vehicle of choice for patient evacuation in the combat zone. The air ambulance is not just an aviation support aircraft, it *is* an *integral* part of the total medical treatment system along with the medical battalion, combat support hospital and evacuation hospital. MSC commissioned aviators are trained to participate in this system and have a working knowledge of all aspects of medical care from the person administering aid in the field to the fixed hospital. They provide the nucleus and continuity for the AMEDD's professional commissioned/warrant officer aeromedical evacuation team.

There are 326 MSC aviators in the AMEDD, many having flown numerous medical evacuation missions in Vietnam combat. The Surgeon General has emphasized career development and progression of MSC aviators, in order that they can perform as professionals both in the air and on the ground. Not only do they carry a primary Speciality Skill Identifier (SSI) of 67J (aeromedical evacuation pilot), but MSC aviators also are routinely rotated into medical staff, hospitals and field units. There they can be found performing in a variety of assignments from medical company commanders to hospital administrators.

Both ground and air ambulance units are commanded by AMEDD officers, thereby preserving continuity in the medical evacuation chain and doctrine. This program also ensures the same military schooling, educational and promotion opportunities to MSC aviators as those that are afforded other MSC officers. The Surgeon General's aviation consultant, an experienced, senior MSC aviator, monitors the 67J career field.

The opportunity for flying experience in the AMEDD Aviation Program is excellent. Air ambulance units are stationed worldwide to include CONUS, Alaska, Hawaii, Germany, Korea and Panama. All units have at least one aircraft on

June 1953, Korea—Two medics secure patient to litter of H-13 helicopter at 44th MASH for flight to 121st Evacuation Hospital

Mid-1960s, Vietnam—173rd Airborne Brigade paratroopers anxiously await incoming Dustoff helicopter that will fly wounded buddy out

24-hour, 7-days-per-week standby, which provides a remarkably good means for increasing a pilot's night and instrument proficiency.

In the United States, the majority of air ambulance units participate in the MAST Program. MAST augments existing local civilian emergency medical service systems by providing military aeromedical helicopter and medical corpsmen to support civilian medical emergencies, i.e., airlift of traffic accident victims to medical centers and other emergency medical support. Military units do not compete for emergency medical evacuation missions in areas where comparable support can be provided by civilian operators. Also, assistance may be provided only to the extent that it does not interfere with the performance of the military mission. The MAST mission has been extremely beneficial to the civilian community and provides an excellent training vehicle for air ambulance personnel. As of 31 January 1979, more than 34,000 hours have been flown with more than 16,000 patients evacuated by MAST units.

Any discussion of AMEDD air ambulance units would not be complete without prominent mention of the Reserve Component units. More than half of the Army's air ambulance resources are located in the National Guard and Reserves. These units are ready, efficient, well led and have high esprit de corps. They participate in the MAST Program on a weekend-only basis and are performing in an exemplary manner.

The AMEDD aeromedical evacuation system has proven to be very effective in reducing the mortality rate during combat. To improve the system, MSC quotas for the Commissioned Officer Flight Training Program have been increased from 17 to 30 spaces per year, which will help alleviate the demand for flight school. The Army's new UH-60 Black Hawk helicopter is to replace the UH-1 in carrying out critical medical evacuation missions. The Black Hawk is a twin engine, 147 knot helicopter that can fly in "ice," greatly increasing our aeromedical evacuation capability, especially in Europe. The Army also is procuring 235 high performance utility helicopter hoists for the AMEDD. This new hoist will be free from the life or death use only restriction, which exists on the old hoist. It will be compatible with both the UH-1 and UH-60.

MSC aviation is exemplified by the phrase, "When I have your wounded." They were the last words of a valiant MSC aviator, MAJ Charles Kelly, who refused to depart a pickup area while under intense enemy fire until all wounded were aboard. He gave his life so others might live. (See "Dustoff, When I Have Your Wounded" by Major General Spurgeon Neel, May 1974, *Aviation Digest*).

Through highly trained professional MSC/warrant officer aviators, flying tough modern Black Hawks, the Army Medical Department will be able to continue to provide the most effective, advanced means of combat medical evacuation while living up to the standard —"When I have your wounded."

LTC Carroll, the Surgeon General's Aviation Consultant

1975, Texas—Following flight, MAST medic and crewchief with help from a nurse deliver a premature baby in an incubator to medical center

Army National Guard Aviation

COL John J. Stanko Jr.
Chief, Aviation Division
U.S. Army National Guard
HQ, Department of the Army

THE NATIONAL GUARD Bureau manages its Army Aviation Program somewhat differently than any other element of the Department of the Army. To understand and appreciate the difference, it is important to know several significant facts:

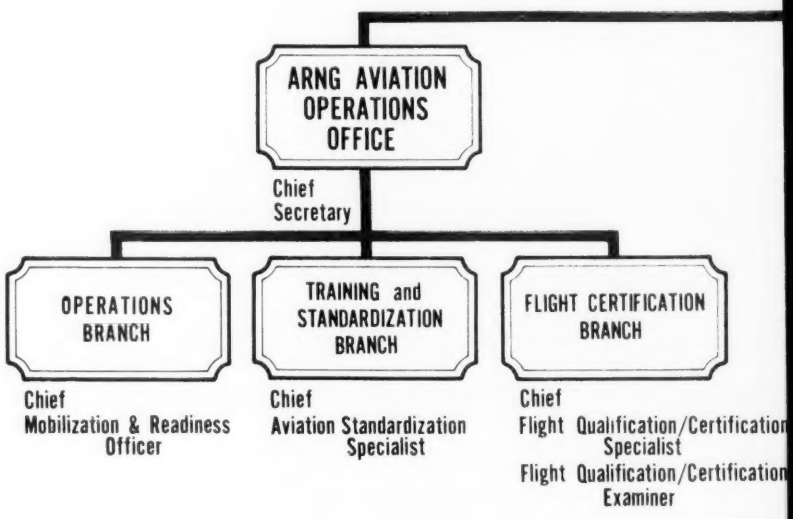
- The militia clause in the U.S. Constitution retains for the states the authority to appoint officers and to train the militia. This means that in peacetime, the Army National Guard (ARNG) of each state is under the command of the governor exercised through the state adjutant general, who normally is a federally recognized major general.
- All correspondence which describes policy, procedures and management of resources must come through the National Guard Bureau.
- The National Guard Bureau is a primary element of the Department of the Army Staff and is a channel of communication between the Army and the states.

Management of Army aviation has been consolidated in the National Guard Bureau by the establishment of an Army Aviation Division with the following mission:

- Staff supervision of the Army National Guard Aviation Program.
- Develop, implement and exercise staff supervision of the Army National Guard Safety Program.
- To perform intensive management for the aviation peculiar functions in the areas of training, operations, personnel, logistics and safety; and the preparation, validation, justification and control of the appropriate funds to support these functions.

The Army Aviation Division in the National Guard Bureau is organized through the functional areas of operations, logistics and safety with a Multimedia Group (located at Ft. Rucker, AL) to provide dedicated and audiovisual support to Army National Guard unique requirements in all three areas (see Aviation Division chart in accompanying figure).

The National Guard Bureau Aviation Operations (NGB-AVN) performs program management functions designed to enhance combat readiness for all aviation elements of the Army National Guard. The program includes all aspects of



aviation operations, training, standardization and aviation personnel management.

The Safety Office (NGB-AVN-S) is comprised of an Aviation Safety Branch and a General Safety Branch. It develops and directs a program of safety management for all ground and aviation elements of the Army National Guard. This program will include safety policy, program control and guidance, and program evaluation at all levels with an objective of reducing and keeping to a minimum accidental personnel and monetary losses.

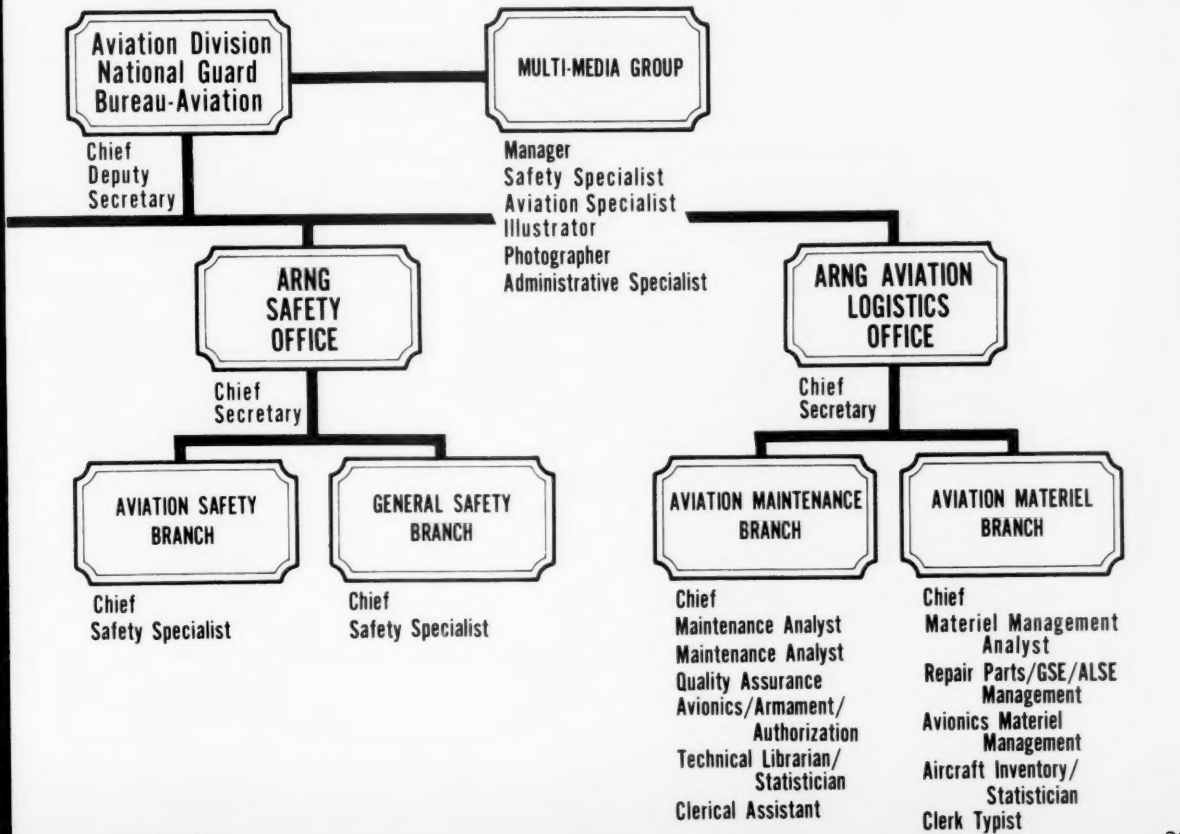
Several years ago, the National Guard Bureau assigned staff responsibility for the entire ARNG Safety Program to the Army Aviation Division. This was done to take maximum advantage of the aviation expertise in accident prevention, with a goal of blending the aviation accident prevention experience into the Ground Safety Program. The objective is one cohesive accident program under one general manager.

The Aviation Logistics Branch (NGB-AVN-L) has a maintenance and a materiel element. It performs logistic management functions for aviation assets in the ARNG; maintains management functions for aviation assets in the ARNG; maintains liaison with commodity commands; supervises the ARNG's intermediate and limited depot level maintenance programs; and maintains operational control over the four transportation aircraft repair shops.

Each of the three offices that make up the Aviation Division are intensive management centers in the prime functions of aviation—safety, training and logistics.

Key to the mission of the Aviation Division is the fact that the National Guard Bureau is not in aviation research and development, not in procurement, nor is it in development of tactics or aviation doctrine. Instead, it is totally involved with the management of a major portion (5,000 aviators and 2,500 aircraft) of the U.S. Army aviation assets with two objectives in mind. One is operational readiness and the other is cost avoidance.

The Aviation Division manages everything from flight status orders to turbine engine repair programs; from Military Assistance to Safety and Traffic (MAST) to approval of an aircraft accident investigation; from the Occupational Safety and Health Administration to flight standardization. Because of this, the National Guard Bureau Aviation Division has developed 28 Army aviation generalists in one division that are dedicated to helping Army aviation earn its wings every day of the year.



U.S. ARMY AVIATION STANDARDIZATION

Directorate of Evaluation/Standardization

REPORT TO THE FIELD

DES welcomes your inquiries and requests to focus attention on an area of major importance. Write to us at: Commander, U.S. Army Aviation Center, ATTN: ATZQ-ES, Ft. Rucker, AL 36362; or call us at AUTOVON 558-3617 or commercial 205–255-3617. After duty hours call AUTOVON 558-3166/3167/3168 or commercial 205–255-3166/3167/3168

The Maturing Of The Instructor Pilot (IP)

STATEMENTS SUCH as "IP failed to take corrective action in time to prevent. . . ." and "IP failed to guard the flight controls to detect improper applications. . . ." seem to be common findings in aircraft mishap reports involving aviation training. When read in FLIGHTFAX or an accident brief, these statements often imply that the IP was complacent.

The events as they actually occurred and the implications of these findings do not always coincide. As a result, two classic questions are frequently raised: "How long does an IP wait before taking corrective action?" and "How close to the flight controls is considered close enough to effectively 'guard' them?" In the opinion of DES, the answers appear as varied as the number of instructor pilots in Army aviation. Perhaps the answer lies in studying an IP's "maturing" process.

It can be said that a new graduate of a U.S. Army Aviation Center (USAAVNC) IP course lacks one very important IP attribute. This attribute is IP experience. Coupled with the lack of IP experience is the absence of having the security of a seasoned IP in the opposite seat, as in the IP course. It should be recognized that the lack of IP experience in deciding safe or unsafe situations and the probability of uncertainty during a training flight by a new IP are real. This uncertainty could manifest itself by the IP "hovering" very close to the flight controls or assuming the controls during critical phases of certain maneuvers. The IP who is affected in this manner normally overcomes this behavior as IP experience is gained.

Experience inspires confidence which, in turn, contributes to an atmosphere of comfort. However, comfort may breed complacency. Confidence, comfort or complacency may provide a false sense of security by relaxing the IP in the cockpit. Left arm resting on the door window, right arm draped over the back of the seat and feet placed flat on the floor during autorotation are signs of a relaxed, confident, and perhaps, a complacent IP. Being relaxed and confident during such maneuvers is desirable; being complacent is not.

Given a similar IP relaxed position during an autorotation on a hot summer day with too little and too late initial collective pitch application by the aviator undergoing training, the result could very well be an aircraft mishap. If a mishap occurs, a statement similar to one of those outlined at the beginning of this article would apply. Assuming that there is no accident, the subject IP would most certainly be in a better position to anticipate the unexpected and recover the next time around the pattern. (This becomes experience.)

The subject of practice recovery techniques from other than standard performance of inflight emergency procedure training has been discussed formally for possible inclusion in the Army Aviation Center IP courses. Defining the limits from which an IP can deviate from the approved maneuver standards and still be capable of recovering safely from the deviation is, at best, difficult. Further, exposure to potential mishaps during emergency procedure training is already higher than flight during normal procedures. These are two major reasons why such limits have not been established.

It would seem that the answer to these problems is IP experience and individual technique. Each IP must develop a sound method of guarding the flight controls during practice inflight emergency procedures without interfering with maneuver accomplishment or intimidating the aviator during realistic training. A method for consideration is to expound on the subject during the introductory phase of the training sequence as outlined in various aircrew training manuals.

Responsibility of the IP to prevent the aircraft from exceeding task standards should be stated to ensure that the aviator fully understands transfer of control procedures. IPs can demonstrate, during a normal maneuver, how they will be positioned in the event they must gain immediate access to the flight controls. IPs should explain to the aviator that, if they sense the IP touch the controls due to closeness, the aviator should

CW2 David Hatcher, right, an IP at Ft. Rucker, proudly glances at his brother, Roger, as they prepare to participate in the graduation fly-by for Warrant Officer, Rotary Wing Aviator Class 76-49, Roger's class. The two Army aviators are the sons of Ray Hatcher of Dayton, OH, and Mrs. Edna Carey of Woodstock, OH

continue to perform the maneuver until an announcement for positive control transfer is made. The IPs also must clearly state that they will not hesitate to take control of the aircraft even if a remote feeling of questionable success exists.

Thorough preflight briefing, early demonstration of IP positioning during flight, and elimination tended to assume this to be the only IP mishap problem. On the contrary, it offers one solution directed toward the reduction of aircraft mishaps during flight training. It is emphasized that safety and standardization in training are inseparable in Army aviation. DES would like to hear comments on this subject.

of reluctance to take the flight controls, should success be in doubt, should result in a significant reduction in accidents involving IP errors.

The above discussion is not in-

Fiscal Year 1978 Reexamined

STACOM 38, 24 January 1979, focused on the Army's unsatisfactory aviation safety record for fiscal year (FY) 1978. In depth analyses of accidents to detect trends and make appropriate recommendations to standardized procedures reveal some interesting data.

All Aircraft Accidents. Army aviators were involved in 90 aircraft accidents which resulted in 57 fatalities. The average age of aviators involved in these accidents was 32.5 years and the average flying experience was 2,337 hours. The average grade aviator was captain if a commissioned officer and CW2 if a warrant officer. The aviator generally could be described as being a mature and experienced aviator.

Rotary Wing Accidents. Rotary wing aviators were involved in 78 accidents, of which 65 were major and 13 were minor. These accidents resulted in 36 aircraft destroyed and 43 fatalities. The average age of helicopter pilots was 31.5 years and average flying experience was 2,004 hours. Although slightly younger and less experienced than the average for all Army aviators involved in aircraft accidents, the helicopter aviator still can be described as mature and experienced.

One type of accident that stubbornly persists in the rotary wing community is the wire strike. It seems that no matter how much effort is expended by the safety and standardization folks, Army aviation is not able to improve its record in this area.

FLIGHTFAX articles, "Unauthorized Low-Level Flights Kill Five" and "Wire Strikes on the Rise," plus STACOM 29, "Wire Strikes 90 Percent Unnecessary," gave sufficient information on unauthorized low level flight and its disastrous aftermath that the aviator with an inclination for adventure in an aircraft might have second thoughts. There were seven wire strike accidents with seven fatalities in FY 1978. These seven wire strike accidents account for only 9 percent of all rotary wing accidents but more than 16 percent of all rotary wing fatalities. For the most part, statistics such as these are the result of undisciplined flying.

A typical accident involved an aviator who broke just about every rule in the book. He took off on a night flight without anyone in the military establishment being aware and was accompanied by an unauthorized passenger. He proceeded to fly low level (below minimum altitude as prescribed by regulations) probably showing off to his passenger until the wire strike and subsequent fatal crash. What kind of a preflight was performed is conjectural, but for this flight on a cold winter night maintenance records reveal that the attitude indicator was inoperative, the directional gyro was unreliable, the automatic direction finder would not point to the station, and the heater was inoperative.

Then there was the aviator who ignored his fellow aviators' coun-

sel about his repeated flight violations and reckless flying. His commander had reprimanded him for flying without a copilot and ordered him to have a copilot on all future flights. He apparently ignored the reprimand and the order because he took off on a mission with a passenger in the copilot's position as the only other occupant of the aircraft. He proceeded to fly at an extremely low level throughout an area that was not authorized for terrain flight training. He was seen to "buzz" a boat in the center of a lake at about 20 feet above ground level (AGL), then climb over a bridge and descend to about 50 feet AGL. The aircraft then struck wires about 1,000 yards from the bridge and crashed into the lake. The aviator was killed; the passenger survived.

Accidents such as these two were caused by the hard core accident producers in the aviation community. The best accident prevention program will not deter them from their nonstandard course of action. These aviators are disciplinary problems and must be treated as such!

Fixed Wing Accidents. Fixed wing aviators were involved in 12 accidents—seven major and five minor. These accidents destroyed six aircraft and killed 14 persons. The average age of fixed wing aviators involved in accidents was 37.5 years and the average flying experience was 4,505 hours. They can be described as very mature and highly experienced.

An examination of one cause factor proved quite interesting. Engine failures (actual and simulated) continue to cause fixed wing accidents. Three engine failures and one simulated engine failure resulted in four major accidents. One major accident involved a gear-up landing during a simulated engine failure. Three destroyed aircraft involved actual engine failures and resulted in 12 fatalities. The three destroyed aircraft (caused by engine failure) represent about 3 percent of *all* aviation accidents, yet they account for 21 percent of *all* FY 1978 aviation fatalities. The experience level of the four pilots in command (PICs) involved was extensive. Their average age was 39.5 years and average flying experience was 5,515 hours, yet these accidents were caused by circumstances that apparently overloaded the pilot's ability to act in the proper manner or in time to prevent the accidents. They were not self-induced.

Now let's look at an accident that could qualify for the award of "The Most Unnecessary Fixed Wing Accident of 1978."

This one involved an Army twin engine aircraft operated by a "highly qualified"(?) aviator. No copilot was assigned to the flight; however, an aviator who was not qualified in the aircraft occupied the copilot's seat. The pilot did not complete performance planning and no briefing or discussion between the pilot and the "copilot" concerning duties and responsibilities took place. Passengers were onboard but no safety briefing was conducted. The "copilot" asked the pilot if he should handle the gear after takeoff and the pilot stated that he would rather do it himself. The pilot then attempted a "modified" (not described in the aircrew training manual) short field takeoff. *He did not inform his passengers of his intentions.* One wonders if they would have stayed onboard for the takeoff *if* they had known what the pilot was thinking. The attempted display of derring-do turned into a disaster. The aircraft was pulled off after a short ground run; it stalled, crashed and burned.

Conclusions: Nonprofessional performance—sure looks like it. Poor discipline—Yes. Nonstandard procedures—totally.

Accidents Involving IPs. The instructor pilot force continues to make its contribution to the aircraft accident statistics. Our IPs were responsible for 20 accidents; 14 major and 6 minor, which included 9 totally destroyed aircraft and 7 fatalities. Accidents chargeable to IPs represent 22 percent of all totally destroyed aircraft, and 12 percent of all fatalities.

- *Fixed Wing:* Army fixed wing IPs were involved in three accidents; one major and two minor. The fixed wing IPs still are having difficulty with the retractable undercarriage. One IP allowed a student aviator to land gear up while simulating an engine failure on takeoff and one was the victim of an inadvertent gear retraction following a landing. The average flight hours of the fixed wing IP involved in an aircraft accident was 5,766 hours. The average age was 32 years.
- *Rotary Wing:* Our rotary wing IPs were involved in 17 accidents; 13 major and 4 minor. The major accidents resulted in nine aircraft totally destroyed and seven fatalities. The typical rotary wing IP to have an accident was 32.9 years old and had an average of 2,458 flight hours of experience.

From our vantage point we see strong standardization programs and procedures as the big reducer in the Army aircraft accident picture. Landing with the gear retracted and inadvertent retraction of the landing gear are good examples of the results of nonstandard procedures.

Flying into wires while joyriding and stalling an aircraft on takeoff are examples of unprofessional procedures. Supervisory deficiencies were noted in these and many other accidents.

The future aviation safety record can be improved; however, if we are to improve our aircraft accident record and save lives and resources, positive steps must be made by supervisors at all levels to ensure professionalism through standardization and adherence to policy.

Army Reserve Aviation

LTC William W. Priest
U.S. Army Reserve
Headquarters, Department of the Army

THE OFFICE OF the Chief, Army Reserve (OCAR) has an aviation staff officer in each of two divisions—Operations and Training (DAAR-OT) and Logistics (DAAR-LO). The mission of these two officers is two-fold: first, to assure that the aviation interests of the USAR are completely interwoven into the total Army in all functional areas; and second, to integrate and coordinate all aviation actions and requirements of the U.S. Army Reserve with all other USAR activities within OCAR. To accomplish these tasks the two OCAR aviation staff officers maintain continuous contact with all other Department of the Army DA staff officers, agencies, and major commands as well as other governmental and civil agencies.

LTC Bert Rice,
Plans and Training Officer

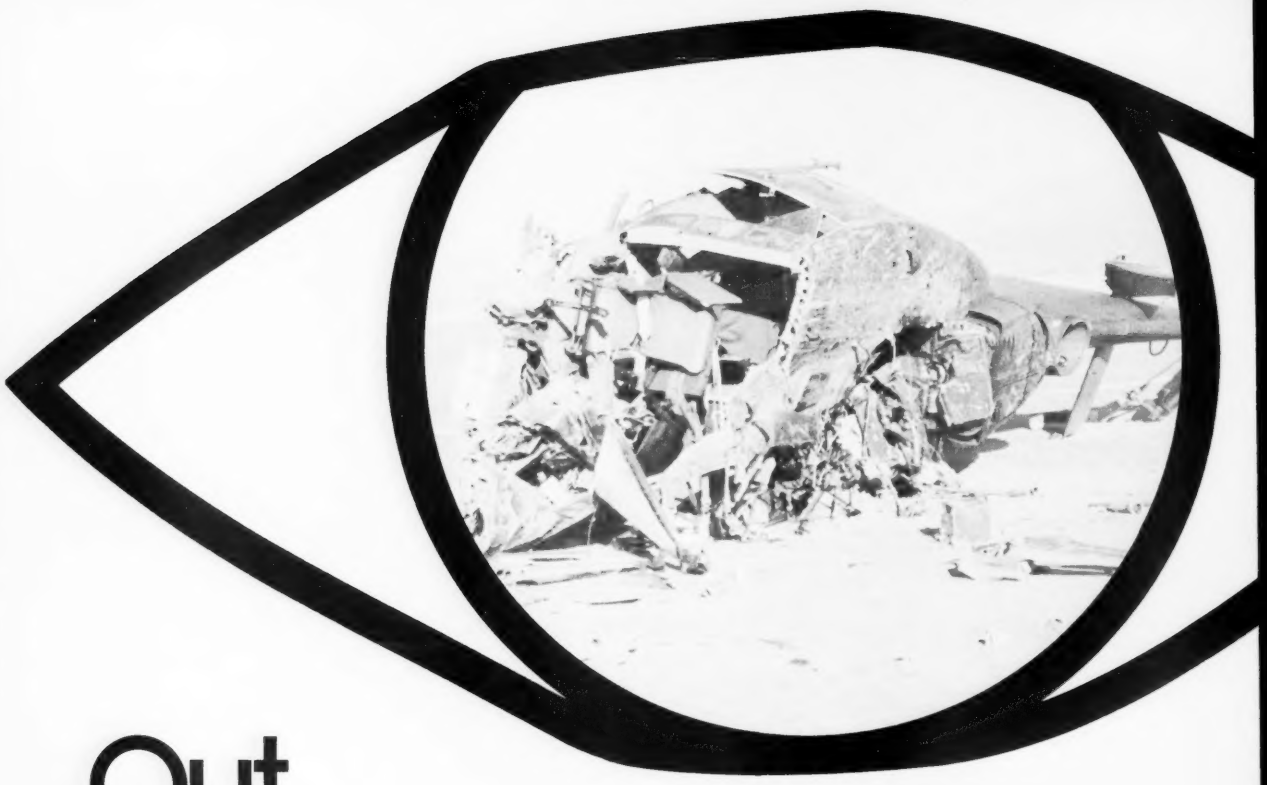
Some of the more routine actions performed in the Operations and Training (O&T) Division include POM (program objectives memorandum) and budgetary preparation for the flying hour program; aviation manpower projections; aviation training requirements; and aviation related force structure actions. MAST (Military Assistance To Safety and Traffic) participation; aviator training and standardization; aircraft accident prevention; and airspace management actions also are handled in O&T Division. Some of the more significant responsibilities of the Logistics Aviation Officer include budgetary formulation to support annual and POM cycle aircraft maintenance requirements; aircraft transfer transactions; and all operational functions which apply to maintenance related activities.

All requests for information relating to the USAR aviation program that arrive at DA are answered by OCAR. These include White House and Congressional inquiries; Defense Audit Agency inquiries; personal letters and, of course, DA Inspector General and Army Audit Agency reports. Further, all DA and Department of Defense regulatory documents with aviation application are forwarded to OCAR for review to assess USAR implications.

The most enjoyable portion of the OCAR aviation staff work is the opportunity to visit with or observe USAR aviation units and collect the views and opinions of the officers, enlisted personnel and technicians. These views and opinions provide the rationale supporting the discussion and ultimate decisions at the various boards, committees and conferences attended by OCAR representatives.

Many detailed functions have not been mentioned here. However, if there is any doubt whether or not the OCAR staff can help you with a particular problem, let us be the judge. At least, perhaps we can refer you to the proper agency to answer your questions satisfactorily.

LTC Grover Snipes,
Logistics Officer



Out of sight

YEAR AFTER YEAR, pilots fly their aircraft into the ground in blowing snow and dust, hover into trees, drift into other aircraft, and rip through trees in fog.

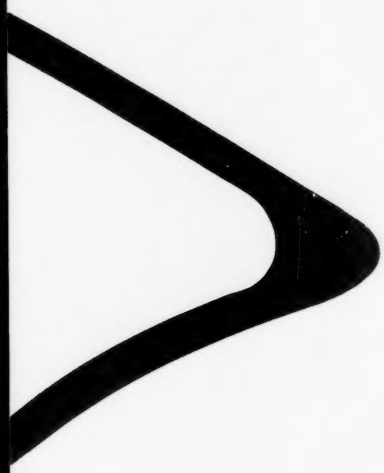
Of 381 accidents during the past 4½ years, 35 (or about 9 percent) were caused by the pilots' loss of visual cues. These accidents cost $17.4 million in injuries and damage and accounted for 23 percent of all fatal accidents for this time period. They happened because pilots couldn't see where they were going or they didn't know the true direction or attitude of their aircraft.

When we talk about the loss of visual cues, we're referring to the loss of ground reference, loss of horizon, or loss of any of the outside references the pilot needs to see to control the aircraft; in other words, the loss of the things you need to see to tell you where you are and where you're going. When operating conditions restrict or distort your view from the seat and prevent the use of reliable visual cues, you must know and use proper flight techniques for safe operation. This is especially critical in operations close to the ground—the kinds of operations conducted almost every day in almost all Army missions.

By knowing the kinds of conditions and operations most likely to cause you to lose visual reference, you can anticipate the problem and be prepared to execute the proper procedures to handle it . . . the old business of forewarned is forearmed.

NIGHT OPERATIONS

Problem. An OH-58 pilot was making a tactical approach during night training under minimum lighting conditions. The only light available was a flashlight wedged between some rocks to mark the landing point. On short final at



about 100 feet, the pilot realized he was overshooting the touchdown point and began slowing forward movement and applying power. After passing over the area marked by the flashlight, the pilot lost all visual reference. He tried to hover without using the landing light, but the aircraft hit the ground in a level attitude.

Correct technique. Because of physical limitations of the eyes, it is difficult to interpret the relative position of a single light when making an approach to a landing zone. The light seems to move. During tactical operations, approaches should be made to either a lighted "T" or inverted "Y" landing zone.

Problem. After conducting range firing and being exposed to bright floodlights, a UH-1H crew was returning to a tactical landing site 10 miles away. En route, the aircraft was flown with cockpit instrument lights set at high intensity. Although the site was equipped with a lighted tactical "T," both pilots were unable to see the low-intensity lights because of patchy ground fog. They turned on the searchlight during approach and the reflected light from the haze caused a whiteout condition. The pilot then turned off the searchlight, causing loss of night vision and depth perception. The crew was unable to clearly perceive their rate of descent, and the aircraft landed hard.

Correct technique. Red lights should be the only source of lighting inside the cockpit, and the intensity of the lights should be adjusted to the lowest level to allow the pilot to read the instruments. Lights which aren't essential to the mission should be turned off. The duration and frequency of preexposure to cockpit lights, or any lights, should be minimized if maximum dark adaptation is required. Landing lights or searchlights should be used with extreme cautionn when encountering fog, haze, smoke, or dust, because the light can be reflected back into the cockpit, causing a whiteout condition.

Problem. A UH-1 pilot took off 1 hour before sunrise, using only a distant mountain on the horizon as a ground reference. After climbing to about 200 feet agl, the pilot made a left turn to fly to a pickup zone. To allow another aircraft to catch up for a formation, he reduced collective and applied aft cyclic to slow the airspeed from 90 to 70 knots, but he did not check the altimeter to confirm his altitude. During this time, the copilot was checking his map for the route to the tactical pickup zone. A few minutes later, the aircraft crashed in a dry lake bed. Three crewmembers sustained major injuries.

Correct technique. Day and night flying over desert terrain is characterized by inadequate visual cues for depth perception. So airspeed and altitude instruments should be crosschecked frequently during both day and night maneuvers. This requirement is even more demanding when flying over sparsely inhabited areas where few ground lights exist. Also, as altitude increases, ground references become less reliable and flight should be conducted by instruments.

DUST OPERATIONS

Problem. A UH-1 pilot was on a night medevac mission. Arriving at the pickup site, the pilot was directed to the area by a ground patrol member using a flashlight. After making a high reconnaissance, the pilot decided to land in an area he knew to be dusty rather than land to a grassy area nearby. He then made a shallow, fast approach with the searchlight extended 45 degrees down and forward and the landing light retracted. Instead of continuing the approach to the ground, he brought the aircraft to a hover and became engulfed in a dust cloud, causing him to lose visual contact 10 to 15 feet above the ground. Unable to judge his speed or altitude because of dust and glare, the pilot lowered collective abruptly, resulting in a slight left yaw and a very hard landing.

Correct technique. Helicopter operations in dust and sand are similar to those in snow. Visibility can and often does approach the near-zero point during taxi operations, takeoffs, and landings. To prevent this, the following procedures should be executed.

- Taxiing: When it is absolutely necessary to taxi in sand and dust, get the helicopter airborne as quickly as possible to minimize the danger of whiteout.
- Takeoff: A running takeoff is preferred for a wheel-type aircraft; otherwise, a maximum performance takeoff is recommended. If rotor blades stir up sand and dust, the maneuver should be executed as rapidly as possible to avoid loss of visual reference.
- Landing: The best method to reduce blowing dust or sand is to make a running landing. If the terrain does not permit a running landing, an approach to touchdown should be made, keeping the touchdown roll to a minimum. However, if the terrain is unsuitable for a running landing, a landing should be made using a greater approach angle than that used for normal approaches.
- Warning: To avoid being enveloped in a dust cloud, approaches should never be terminated to a hover and aircraft should never be brought to a hover during takeoff, especially when terrain is known to be dusty.

AIRCRAFT DESIGN

Problem. Shortly after takeoff at night from a confined desert area, a UH-1 pilot-in-command who was flying from the copilot's seat made an emergency descent following engine failure at 300 to 500 feet agl. During descent, the pilot was unable to turn on the landing- or searchlight from the left seat due to the lack of a switch on the collective control. Without visual reference, the pilot pulled collective too high and rotor rpm decreased. The aircraft fell through, hit the ground, and burned. All four persons aboard were killed.

Correct technique. It has become commonplace for pilots-in-command to fly in the left seat of the UH-1 due to better outside visibility. However, during a night emergency at low level this becomes extremely hazardous because of the lack of a landing- or searchlight switch on the left-seat collective control. This situation is further aggravated by the UH-1H's lack of a radar altimeter which would supply accurate information needed to safely cushion the aircraft from 1 to 5 feet when visual cues are lost. Although future plans are to install radar altimeters on both the UH-1H and AH-1G, it is highly recommended that pilots-in-command fly in the right seat until radar altimeters are installed.

Problem. The OH-58A is noted for excessive glare at low levels from the fixed landing light, and many aviators hesitate to use it. One pilot was making a precautionary landing at night because the chip detector light had come on. He did not turn on the landing light and made a steep approach to an area he thought to be open and clear. At 8 to 10 feet agl, the tail rotor struck tree branches and the aircraft hit the ground in a tail-low attitude, causing major damage.

Correct technique. Avoiding use of landing lights should never come before safety. If at any time during a night approach you are not sure of the landing site, the landing light should be turned on before reaching low altitude to view the site and then turned off on short final. Future plans are to modify the OH-58A and OH-58C with the UH-1-type adjustable lights.

INADEQUATE AIRFIELD LIGHTING

Problem. A UH-1 pilot was hovering to an unpaved active runway for takeoff during a night tactical training mission. Encountering dusty conditions, he decided to hover instead to a sod area between the active runway and taxiway. While taking off from a hover, the pilot inaccurately estimated height above the ground and the aircraft skid caught on PSP of an unlighted helipad, tearing skids loose.

Correct technique. The accident might have been prevented if there had been adequate airfield lighting to provide the pilot with sufficient visual cues. But pilots must realize that when hovering over an open, grassy area, it is difficult to maintain altitude and a constant position over the ground because there are no ground references that can be used to estimate vertical or horizontal movement. To develop proficiency when hovering with the aid of a landing- or searchlight, you must use the same techniques for daytime hovering.

We have touched on only a few of the many accidents caused by loss of visual cues and the techniques which should have been used but weren't. To cope successfully with the hazards in these different environments, you should thoroughly familiarize yourself with the appropriate operators manuals plus all the specialized techniques contained in these DA Training Circulars: TC 1-28, "Rotary Wing Night Flight"; TC 1-12, "Cold Weather Flying Sense"; and TC 1-13, "Hot Weather Flying Sense." Increased pilot awareness can prevent accidents caused by the loss of visual cues.

from APPROACH

Pussycat or Professional

U.S. ARMY SAFETY CENTER

ONE OF THESE days, through the concerted efforts of flight surgeons, psychologists, psychiatrists, human engineering experts, and scientists, a method may be developed to "look into the minds" of aviation candidates and pilots to determine their safety quotient. Whatever the method may be, it could be used to process applicants before flight training, and may even be used to terminate flight status of pilots already flying, if the tests prove an individual's safety quotient is less than satisfactory.

The tests undoubtedly will remove all inhibitions and reveal the real person. Responses, reactions, and replies of individuals will be measurable—possibly to the point of measuring their conscious and subconscious. A safety quotient readout would result, and those who equal or exceed the minimum standard will be the pilots of tomorrow.

What these yet-to-be-developed tests may weed out are those pussycats who flaunt rules and regulations, who don't recognize their own capabilities and limitations, who do not take advice of others, and who take unnecessary risks. Those who are left in a flight status will be the real tigers. These are the ones who take extra time to look critically at the maintenance history of a bird before signing for it. They will be the thorough pilots who carefully preflight the bird, no matter what the conditions. They are the ones who will brief the flight and fly it as briefed. This group will encompass pilots who have enough self-discipline to resist any urge to engage in unauthorized maneuvers. It will include the ones who always allow an extra margin for error.

Imagine Naval aviation being made up of 100 percent tigers! No more accidents due to flathatting, no more accidents due to fuel starvation, no more accidents on administrative flights into known icing conditions or thunderstorms, no more accidents due to "get-home-itis." Eureka, it's Utopia!

Enough dreaming, let's get back to the real world. We don't have magic

PUSSYCAT OR PROFESSIONAL

formulae or safety quotient testing to expose the few who fly aircraft when they shouldn't. However, there are signs and idiosyncrasies which can be spotted to make one suspect.

We spot immediately the squadron loudmouth. (Most squadrons have one.) Then there's the squadron "showboat." (Seldom the same one as the loudmouth.) Keep your eyes peeled, too, for the lazy lunk—the one who can't be bothered with planning or preflights. The list of suspects might also include the clown. You know the kind; the one who is never serious about anything; the guy who gives voice to the philosophy that life's too short to worry.

Far-out tests, Utopia, braggarts, exhibitionists, lazy louts, and clowns—what in the world is the connection between them and this article? Here goes.

It seems that in the fraternity of Naval aviators there are a few misguided souls who make fun, poke ridicule at, and berate anyone who plays it cagey.

For example, consider a recent Anymouse [anonymous report similar to the Army's Operational Hazard Report]. "I am an ex-rotorhead who became a stiff winger. A recent incident took place that really bugs me. Let me state first of all that I believe in rivalry between squadrons."

• After a conference at NAS, two aircraft departed for Hometown. Our sister squadron's aircraft was at 19,000 feet, and we were at 17,000 feet. The weather at Hometown was forecast to be at GCA minimums on arrival. We were given instructions to hold 25 miles short of Hometown because the weather was temporarily below GCA minimums. Upon entering holding, we could see a clear area 5 miles behind us and knew it was just a matter of time before Hometown became CAVU. Fuel was no problem; we had plenty, but we did have a decision to make. Should we continue to hold or divert to our alternate which was CAVU and only 15 minutes away? We decided to divert, have some coffee, and wait for better weather at Hometown.

The sister squadron's plane commander, being the tiger he is, made another decision. He was cleared for a GCA to minimums, made an approach, but didn't spot the runway the first time. He waved off and, on the second attempt, saw the runway environment and made a successful landing. The pilot said later he couldn't see the tower as he taxied by, about 1,000 feet away.

Meanwhile, back at the alternate, we had a nice hot cup of coffee, refueled, and departed for Hometown an hour after the other aircraft landed. We arrived in CAVU conditions and landed. The thing that bugs me is the razzing we took from the pilots in our sister squadron. We were called pussycats because we didn't shoot an approach when the weather was below minimums. If this is being a pussycat, then I "are" one—and glad of it!

Accepting at face value the weather conditions reported in the Anymouse, the two plane commanders were faced with a decision. The one who chose to divert was a *bona fide* tiger. He was allowing that extra margin for error. There was no operational necessity to attempt a landing at Hometown, below minimums existing. There was plenty of fuel on board to reach his alternate, and knowing that the weather would improve within a short time, he used good common sense in diverting.

The other plane commander, who made a decision to shoot an approach, was perfectly at liberty to do so. However, after the first approach, when the pilot was unable to land, perhaps prudence would have dictated a divert instead of a second attempt. Anymouse does not mention whether Hometown's weather improved to minimums or better for the second approach. Even though the plane commander couldn't see the tower when he taxied by, Hometown could have been reporting legal minimums.

We would be remiss if we failed to comment about pilot capabilities and limitations. Just because a pilot possesses an instrument ticket doesn't mean he has the temperament, skill, or experience to shoot an approach to minimums under any conditions. There are some Naval aviators who complete an entire career without doing so. There are others who make such approaches frequently. Anyone who knows that a particular flight maneuver might overtax his capabilities is foolish to attempt the maneuver. Many pilots, by virtue of frequent and regular instrument flights, become highly proficient and confident, and think nothing of shooting an approach to minimums.

Good-natured bantering at the O-club is recognized and is as much a part of squadron rivalry as anything. It's healthy, when maintained within reasonable limits, and can bring out that extra effort to make one squadron the "E" winner and others merely "also-rans." However, misplaced ridicule is absurd and should never arise. Those who use it are ridiculous. A very wise old philosopher once put it this way: "What I do speaks louder than what I say."

Aviation Systems Division

Continued from page 11

to function as the HQDA point of contact for all aspects of system development and acquisition and to coordinate the status of all events in the Life Cycle System Management Model for a major system or other system selected for DASC management. The functions of a DASC are spelled out in two pages of AR 70-16.

Figure 2 depicts the contacts made as a typical DASC coordinates, describes, defends, articulates and justifies the system at the Army staff level; the Department of Defense; and the Congress to highlight some of the areas in which DASCs function. They are the DA proponents for Army aviation RDA programs. In the words of the DCSRDA, they are "the real heart" of the system.

A short update on the programs overseen by the Aircraft Team is in order, keeping in mind that the "train is moving" and most of the topics to be mentioned are worthy of complete articles in themselves (e.g., "AH-64" by LTC Stanley E. Grett in the April 1978 issue of *Aviation Digest*). The first firing of a HELLFIRE from the AH-64, advanced attack helicopter, occurred on 3 March 1979 and the first full systems flight for the AH-64 was scheduled for June. The Target Acquisition Designation System/Pilot Night Vision System (TADS/PNVS), described in COL Grett's article, begins its competitive flyoff this December. The two development contractors are Martin-Marietta and Northrop.

The HELLFIRE Modular Missile System development recently experienced six completely successful guided flights from an attack helicopter airborne using a ground locator laser designator.

The UH-60 Black Hawk program has six production aircraft: two at the Ft. Rucker, AL training base and four at various sites involved in maturity tests. Fifteen early production aircraft will be assigned to Ft. Campbell, KY for the Force Development Test and Evaluation (FDTE) in the 101st Airborne Division (Air Assault).

The ASH remains a high priority Army program, though still controversial in some eyes. The ASH Special Study Group (SSG) should complete its efforts in August. Updates will be provided in future issues of the *Aviation Digest.*

The CH-47D had its roll-out on 6 March at Boeing Vertol in Philadelphia and its first hovering flight on 11 May, 4 months ahead of contract! The *Aviation Digest* will have indepth coverage of the CH-47D program by the Project Manager in its September issue.

All of these actions along with the fielding of the AH1S Cobra/TOW in USAREUR mark the progress of Army aviation in its modernization of equipment required for the battlefield of the mid-1980s.

The Technology and Support Team is involved in this modernization also, though much of its work will bear fruit in the 1990s in such technology programs as the Advanced Technology Demonstrator Engine (ATDE), Advanced Composite Aircraft Program (ACAP), Fly-By-Wire (FBW), and Advanced Rotors.

In the Avionics area, the Joint Tactical Microwave Landing System (JTMLS) is nearing advanced development. Nap-of-the-earth communications is looking forward to a production contract in 1980 for its improved FM and modern HF single sideband radios.

The Black Hawk prototype flight simulator received its inplant acceptance on 8 May 1979. It should enter developmental test/operational test (DT/OT) II testing this September. The flight simulator DASC was fortunate enough to "fly" this simulator recently. The camera model board visual system is performing well. Development work is continuing on the digital image generation system. The AH-1 simulator is in DT/OT II at Ft. Rucker. Most of you are familiar with one of the 22 UH-1 simulators fielded worldwide.

The evolutionary development of flight simulators from the basic instrument trainer, 2B24 UH-1 simulator, through the AH-1 and Black Hawk simulators up to the full combat mission simulator being developed for the AAH, represents Army aviation success in achieving combat readiness while achieving cost savings through reducing flight hours. The UH-1 simulator represents significant savings in energy (aviation fuel) while the AH-1 simulator will achieve savings in ammunition costs. It is Army policy to make optimum use of flight simulation to enhance readiness in a world of diminishing resources.

The Budget Team assembles the Army aviation research, development, and acquisition portions of the Army budget. The fiscal year 1979 aviation funds authorized and appropriated by the Congress totaled $361.6 million for RDTE and $949.7 million for APA. The fiscal year 1980 President's budget request to Congress is $362.7 million for RDTE and $946.4 million for APA.

The entire Army aviation community has contributed to and takes pride in the modernization discussed above. The Aviation Systems Division, ODCSRDA, through its day-to-day actions in its role as advocate for Army aviation research, development, and acquisition on the Army staff is a major player in this modernization thrust.

An L-19 over Korea. The Bird Dog made its appearance in the theater early in 1951

Army Aviation Logistics *In Evolution,* 1942-1953

Part 2

Laurence B. Epstein
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New Aircraft Types. The aircraft were simple, off-the-shelf conventional civilian types which did not require an extensive logistics system. However, the problems experienced in the early months of the war led to a complete reorganization and expansion of the Army aviation logistical framework. After 1947 some of the change resulted from deficiencies in the dual Army/Air Force division of responsibilities for aviation logistics. But much of the change was inevitable as the new aircraft introduced into the inventory were progressively larger, heavier and more complex. The logistical system that supported them by necessity also became larger and more complex.

Although newer types were on the way prior to the Korean War, the conflict both speeded up the process and added additional models. A greater variety of aircraft, both fixed and rotary winged and in larger numbers, were required as the roles and missions of Army aviation both increased numerically and expanded in scope.

The Cessna L-19 Bird Dog (later designated 0-1) arrived in the theater on 16 February 1951. It was Army aviation's first all metal, high wing, observation and reconnaissance airplane. It had a 213-horsepower engine, a built-in VHF multichannel radio, flaps, heaters, electrical system and blind group of instruments. It also had a shoulder harness, a much needed safety feature. The L-19s were easier to maintain, required less maintenance per flying hour and were more reliable than the L-5s they replaced.

Another excellent aircraft, the de Havilland L-20 Beaver (U-6) arrived in December 1952. This multiplace, all-metal airplane, powered by a 450-horsepower engine and capable of carrying a 1-ton load, was a mechanic's dream with its cold weather starting characteristics. A built-in oil diluting system allowed the engine to be started on the battery alone, even at 11 degrees below zero. A fuel pump was switched on at the end of each winter day which forced gasoline into the oil system to lower the oil viscosity. The gasoline, which burned out in 30 minutes, prevented the need to thaw the oil out each morning before flight.

One problem experienced with the introduction of new types into the theater was the failure to stockpile the authorized stockage of spare parts prior to or concurrent with the introduction of the new types. This was a common aviation problem. Manufacturers tended to neglect the production and distribution of spare parts since these did not affect the production achievements and goals. Once the "honeymoon period" was over, these new aircraft had to have major subassemblies and components removed for replacement and rebuild.

The Helicopter. The Army Air Corps became interested in the helicopter for reconnaissance roles in 1922 when it contracted for the fabrication of a prototype. However, the contract was dropped the following year when the rotary winged vehicle failed to meet the standards specified. The Army's interest was reawakened in 1939 when Igor Sikorsky built his successful model VS-300. Sikorsky followed with the much improved XR-4 which the Army Air Forces contracted for as the B-4. Deliveries began in 1942.

The Army Ground Forces began investigating the feasibility of using rotary winged aircraft to fulfill its missions. Their first helicopter pilots were trained in late 1945 and 1946 under an informal agreement with the Army Air Forces. The trainees

were selected on an informal basis and trained in Sikorsky R-4, R-5 and R-6 helicopters at Scott Field, IL; Sheppard Field, TX; and San Marcos Field, TX. CPT R.J. Ely, the first helicopter pilot in this program to win his wings, received his training at Scott Field in 1945. The Army aviation's first helicopters were 13 Bell YR-13 Sioux which began to come off the production line in December 1946. After the start of the Korean War, Sikorsky H-19 Chickasaw and Hiller H-23 Raven were added to the inventory.

The helicopter in the Korean War had a profound effect upon Army aviation. Although relatively few helicopters were employed, and those mostly in the latter stages, their impact was dramatically visible.

The Army had no cargo helicopters in the inventory at the outset and those on order were not expected for several more years. The Air Force and the Navy had contracted for the limited production available over the next few years.

Technology had not developed to the point where the helicopter could lift much weight. The machines were fragile, mostly hand-built, difficult and expensive to maintain, and unreliable. The fledgling helicopter industry was an "industry" mainly in name. It was dependent upon military contracts since helicopters excited little civilian commercial interest. The helicopter—in 1950—was more promising in concept than in performance.

However, it was in the role as a cargo-carrier that the helicopter held the greatest potential to the Transportation Corps, which was exploring this avenue when war erupted in Korea. But what captured the imagination of the public and the attention of the Pentagon was the impressive number of medical cases that could be and were evacuated from the battlefield by helicopters, in spite of their limited range, small number and limited carrying capacity.

The reliance upon the helicopter was essential to overcome the lack of roads in the rugged terrain. Many Soldiers and Marines who would have otherwise died of their wounds survived as a result of their prompt evacuation, mostly in H-1Bs, to adequate medical care facilities. To the public, many of whom questioned the war, the life-saving helicopter was one of the brightest lights of the conflict. As a result, unlike at the end of World War II, Army aviation was to experience a continued and progressive growth even after the cessation of hostilities on the Korean peninsula.

During the early days of the war, in June 1950, Helicopter Detachment F of the Third Air Rescue Squadron (USAF), flying H-5s, began to receive requests for the evacuation of casualties from ground units who couldn't reach them by wheeled transport. Being a rescue unit, it was equipped to respond to such calls and found itself doing it fulltime by August 1950. The Army took note and on 3 August 1950, Army and Air Force representatives tested the concept in the school yard of the Taegu Teachers College. The test resulted in the Army accepting the helicopter for the medevac role and developing procedures for it.

The first Army helicopters to Korea were with the 2d Helicopter Detachment and consisted of four H-13s and their pilots. They arrived in Seoul in November 1950 and became operational on New Year's Day. Since their helicopters were too small to carry patients internally, the pilots obtained British Stokes litters from a hospital ship and mounted one on each side of the undercarriage. Three other detachments arrived during the next several months. During their first 6 months of operation, the 11 helicopters evacuated 1,985 casualties. Between 1 January 1951 and the cessation of active hostilities on 27 July 1953, the helicopter detachments under the control of the Army Medical Service, operating about 20 aircraft, evacuated a total of 21,212 casualties. [This figure does not include medical evacuations by divisional aviation detachments or Air Force, Navy or Marine detachments.]

The first Army cargo helicopter company arrived in Korea in February 1953. It was equipped with 21 H-19s. A second company followed soon after. Because these were the first and only two Army cargo helicopter companies in the combat zone, a number of tests were conducted with the two units. For example, one unit operated from a paved heliport complete with a large hanger and other facilities, whereas the other inhabited an unimproved, austere facility with tents for hangers and living quarters. It was found that the adverse operating conditions at the unimproved facility resulted in additional maintenance, a higher consumption rate of certain parts exposed to decomposed granite dust, and a generally lower

Mechanic's dream, L-20, came to Korea in December 1952. The Beaver could be battery started even in below zero weather

morale due to the unsatisfactory living conditions. The increased cost in additional spare parts and higher maintenance exceeded the expense of constructing the dust-proof heliport.

Helicopter Maintenance Problems. The helicopters presented a variety of maintenance and supply problems due to their newness and primitive state. Because the machines were built in such small numbers, they were both costly and expensive to maintain. But manufacturing costs were expected to decrease considerably as a result of increased production, improved designs and extended reliability. In spite of their shortcomings, helicopters could perform tasks no other air or land craft could.

The major maintenance problems of the helicopter were the lack of adequate supplies of spare parts, the required frequency and extent of inspections, the need for special tools, the shortage of trained personnel, the need to either reduce or eliminate the excessive vibrations and the need to find the right combination of spark plugs and gasoline. The most troublesome problem was the inadequate supply of spare parts. Inattention was paid to the need to keep the supply pipeline filled with replacement parts.

Often a helicopter was grounded for days and sometimes weeks because the parts were not on hand for immediate replacement. The usual practice was to replace an entire assembly, such as the gearbox, rotor assembly or engine, instead of disassembling it until the defective parts could be located and either repaired or replaced. The lack of special tools, machinery and trained personnel precluded this procedure in the field and at most installations. Some models required as many as 75 special tools applicable only to it. The variety of helicopter makes and models made the need for the standardization of parts apparent. Certain assemblies needed to be made interchangeable between comparable types.

Army specifications did not contain requirements for a minimum period of life to the manufacturer. The Civil Aeronautics Administration began to require in January 1951, that hubs, blades, blade attachments and controls which were subject to alternating stresses be designed to withstand repeated landing conditions, either by fatigue testing or other methods.

Unlike fixed wing aircraft, the surfaces which control flight are constantly rotating, causing vibration and wear throughout the control system. An out-of-adjustment condition affected both the ability to control the machine and the performance of the helicopter. To eliminate these vibrations requires a skilled diagnosis of the condition to locate the cause, special tools, skilled mechanics and much time.

Scheduled maintenance manhour requirements during the mid-1950s began at 1 hour for each hour of flying time during the first 100 hours, rising to a ratio of 10 to 1 during the life of the machine. Units in the Far East Command (FEC) experienced 1 to 2 maintenance hours per flying hour for the first 90 to 120 hours of operation and 1½ to 3 thereafter. The life expectancy of parts and assemblies was steadily improved. Major reduction in maintenance time was dependent to a great extent on simplification of designs to permit better accessibility to component parts, and using materiels of improved quality.

The critical shortage of helicopter parts resulted in command action at Department of the Army level. Several joint Army/Air Force teams were sent from the FEC back to CONUS during 1953 to survey the parts situation in all depots. They presented lists of needed critical items and made recommendations as to additional assets needed, but which did not exist. Their effort eliminated the major portion of the critical shortages within FEC. Special flights from CONUS flew the needed parts on an emergency basis. The improved supply situation became apparent from June 1953 on, resulting in a high degree of aircraft availability.

Maintenance Organization. The 79th Ordnance Battalion was servicing all Army aircraft in Japan at the time the Korean War began. The battalion was composed of a headquarters, three ordnance light aviation companies (OLAMs), and the 71st Ordnance Depot. One OLAM was sent to Korea at an early stage with the remainder of the battalion following later. They provided supplies, repair parts, replacement aircraft and repair shop facilities.

Difficulties were encountered in getting replacement aircraft and spare parts from the short supply stocks in CONUS. The 71st Ordnance Depot Company contained a provisional heavy maintenance platoon to provide fourth echelon maintenance and backup support to the OLAM companies. In practice, this structure was unwieldy and unsatisfactory, although command control over the assigned units proved adequate.

A staff study recommended that a separate heavy aircraft maintenance company and field depot company could be established within the battalion structure. Headquarters, Armed Forces Far East (AFFE)

First helicopter pilots were trained in the R-4 (below), the R-5 (top next page) and the R-6 (below, right) at Scott Field, IL in 1945 and 1946

approved the proposal and directed Eighth Army to organize the 8178 Aviation Army Aircraft Heavy Maintenance Company, the 71st Army Aircraft Field Depot Company, and the Army Aircraft Maintenance (TAAM) Companies. The revised structure proved sound and, except for minor changes in the tables of organization and equipment, remained basically unchanged throughout the remainder of the conflict.

There were sufficient numbers of mechanics in the beginning because of the shortage of aircraft. As more aircraft arrived in the theater, this condition changed. Enlisted Soldiers serving in theater with experience as automobile mechanics were located and transferred to aviation sections where they received on-the-job training to alleviate the shortage of aircraft mechanics.

The inadequate flow of spare parts and major assemblies led the 79th Ordnance Battalion to begin a theater rebuild program. The worn parts and subassemblies were removed, inspected, rebuilt and returned to the supply pipeline. The temporary improvement in the availability of critical parts was offset by the failure to record the consumption of the rebuilt components on the stock records cards. Since the cards did not accurately record the consumption of these critical items, the Air Force depots in CONUS took no action to continue the flow of these controlled items in the long pipeline for such items as helicopter transmissions, tail rotorboxes, rotor hubs, rotor blades and similar items.

Furthermore, because repairables in the theater were not returned to CONUS for rebuilding, it was assumed that none were required. As Army parts and supplies were not separated from Air Force orders, many items became lost or misplaced and the Army received no credit for repairable assemblies and parts returned to the system in the theater.

These problems were compounded by the rapidly increasing use of the aircraft beyond what had originally been projected. An additional increased consumption was imposed by the unfavorable operating conditions in Korea, particularly the adverse weather and the harsh geography.

During World War II, the Ordnance Corps had acted as the coordinator between the Army Air Forces which procured aircraft, engine, and spare parts and the Army Ground Forces who were the users. The Ordnance Corps took over additional functions when the Air Force was established as a separate service in 1947, since the storage and distribution of Army aviation hardware was similar to other equipment handled by them. But the Ordnance Corps was not committed to Army aviation since it considered its logistics role as merely an auxiliary function.

The Transportation Corps, established during World War II, became interested in the potential of the helicopter as a cargo-carrying vehicle. Therefore, when the Army established an experimental cargo helicopter program during the summer of 1950, the Transportation Corps handled the planning and coordination of the program between the Army Field Forces and the Army General Staff as to the activation, equipment, training and formulation of doctrine for the employment of cargo helicopter units.

The Army's increasing awareness of the utility of cargo helicopters led to an indepth review of the entire Army aviation program in mid-1952. It was decided as a result of this study to expand the cargo helicopter program.

Much to the surprise of the Transportation Corps, G-4 directed the Chief of Transportation on 23 July 1952 to "assume and pursue with vigor all logistics functions regarding the aircraft program presently performed by the Chief of Ordnance."

The Transportation Corps was given the responsibility for the total logistical support of Army aviation within the Army in order to centralize and give direction to the program.

Although the Transportation Corps officially resumed responsibility for Army aviation on 11 August 1952, the transition was implemented in phases to provide continuity of service.

The Ordnance Corps' Raritan Arsenal continued to operate as the aircraft supply and maintenance control point and other Ordnance depots continued to process requisitions for aircraft parts, tools and equipment that had become TC-owned. The aircraft field maintenance units were turned over wholesale to the Transportation Corps, but Ordnance personnel continued in maintenance training courses until the Transportation Corps was able to fill the school quotas with its people.

The OLAMs were renamed Transportation Corps Army Aviation Maintenance Companies (TAAMCOs). The transfer of responsibility, existing units, equipment and facilities in Korea went smoothly since the Ordnance Corps had operated their aviation logis-

After the start of the Korean War the H-23 Raven (above) and the H-19 Chickasaw (below) were added to the Army's inventory. The H-13 Sioux (bottom) was the first Army helicopter to arrive in Korea, in November 1950. (This photo taken in Korea, 1952.) Two Stokes litters were mounted to carry patients

tical organization as a separate system in Korea. "They (the Transportation Corps) undertook their new mission with an enthusiasm that had been conspicuous by its absence during the tenure of the Ordnance Corps."

Although the Transportation Corps was assigned the responsibility of providing field maintenance and supply support of all Army aviation, it maintained operational control only over those helicopters and fixed wing aircraft organic to Transportation Corps units. The Air Force still was responsible for procuring aircraft and furnishing depot level maintenance. As the technical service responsible, the Transportation Corps assigned aircraft where authorized by the recommendations of G-3 and G-4 which directed both training and operations. Neither the Aviation Section of Eighth Army in Korea nor the Aviation Division of G-3 of Headquarters, AFFE in Japan had operational control over units authorized aircraft in the Far East.

In carrying out these new responsibilities, the Transportation Corps found it needed to develop a headquarters and field organization to cope with its expanding aviation activities, to coordinate with other Army agencies involved with it, and to maintain liaison with Air Force components servicing Army aviation. Long-range reforms for the existing aviation structure, research and development, and procurement needed to be developed in order to handle the rapidly expanding aviation activities.

The Air Transport Service Division, under LTC William B. Bunker, was given the task of directing the Army aviation activities for the Transportation Corps. The division, a component of the Office of the Chief of Transportation (OCOFT), supervised the procurement of Army aircraft and allied equipment, research and development, supply and maintenance support, training and doctrine.

The Transportation Corps was reorganized during the fall of 1953. The Army aviation structure was left untouched to be integrated at a later date, but its vertical structure was retained as the best way to meet the rapid expansion of its mission and its newness.

Army aviation, as we know it today, developed from these changes. The groundwork was laid, found adequate, and the structure added to and improved upon.

THE
THREAT

Soviet 122 mm Howitzer

THE SOVIET 122 mm self-propelled (SP) howitzer M-1974 uses many components of the PT-76 amphibious tank family, but has seven road wheels (rather than six) supporting a dead track, with the drive sprocket at the front and the idler at the rear. The engine is located at the right front and the driver at the left front of the hull, which has a boat-like bow somewhat resembling that of the BMP. At the rear of the hull is a low-silhouette turret, rounded at the front, with two cupolas, each with a single hatch cover, for the gunner and commander. The long 122 mm gun tube with a double-baffle muzzle brake and a bore evacuator is flush with the forward edge of the vehicle. A recuperator and a recoil mechanism are located above the tube at the rear. A large infrared searchlight is mounted on the top left of the turret, and a nuclear, biological and chemical filter housing is located on the right side of the hull beside the barrel.

The SP M-1974 provides highly mobile, all-terrain fire support for both tank and motorized rifle divisions. It is amphibious and capable of operating in irradiated or contaminated zones. It has a maximum range of between 15 and 24 kilometers (see paragraph below), and also is used extensively in a direct fire role. Its maximum speed is estimated to be between 50 and 70 kilometers per hour on land and 10 kilometers per hour in water. On the limitations side of the ledger, its armor protection is slight for the 4-man crew.

The SP M-1974 also is known simply as SP-74 and as the SAU-122. It first was seen publicly in 1974, during the 30th anniversary of the Polish Peoples Republic, and now is in service in at least the Polish and Soviet armies. Originally employed as a replacement for the old JSU-152 heavy assault gun as a support vehicle in armored units, it is now replacing the 122 mm howitzer D-30 in motorized rifle and tank divisions and is expected to replace all towed 122 mm weapons by 1980. The armament of the SP M-1974 generally is thought to be a modified version of the D-30 howitzer and hence to have the same range (15,300 meters with a normal round, or 21,900 meters with rocket assisted projectiles) and characteristics as the D-30. However, it also is possible that it may represent a modification of the 122 mm field gun D-74 and thus have the same range (21,900 to 24,000 meters) and characteristics as that gun. For this reason, the SP M-1974 is variously referred to as a gun, a howitzer or a gun-howitzer.

PEARL'S

Personal Equipment & Rescue/Survival Lowdown

If you have a question about personal equipment or rescue/survival gear, write Pearl, DARCOM, ATTN: DRCPO-ALSE, POB 209, St. Louis, MO 63166

Zinc Chromate Flavor

For those of you who fly the OV-1 Mohawk aircraft, it has a rigid seat survival kit (RSSK). In the RSSK you will find a frying pan. Now this frying pan could be a very handy little item in a survival situation, but we don't think you would like the zinc chromate flavor of the food that you may cook in it.

A close inspection revealed that some of the frying pans had been painted, inside and out, with zinc chromate paint. This paint is great for preventing rust, but it sure won't do anything toward improving your disposition in a survival situation.

So we suggest that you inspect the frying pan. If it has been painted, use a suitable paint remover to remove the paint. Wash the pan thoroughly and replace it in the RSSK. You may coat the pan with a very thin layer of cooking oil. This oil can either be washed or burned out if you ever use the pan as a cooking utensil. In the interim it also will prevent the pan from rusting.

Match Friend

The lowly match could prove to be a warm friend in the dark lonely atmosphere of your survival habitat. One of these friends also could ruin your day if it were to ignite in your aircraft accidentally.

The Box, Match Plastic (NSN 8465-00-265-4925), is a component of most survival kits. Inside the cap of the box is an abrasive striker surface used to ignite the match. We have found that the matches are stored in the box with the head of the match against the striker surface. Please take a look at the match box in your survival kits, and ensure that all the matches are stored with the heads down, at the opposite end of the cap from the striker surface.

C-12 Situation

An undesirable situation exists with survival kits found in the C-12 aircraft.

Many of these kits are not being adequately inspected to ensure that the components are currently dated, or that they will perform as designed. If the kits still bear the old FSN (Federal Stock Number) rather than the newer NSN (National Stock Number) which has been around now for several years, that is a good indication the kits are old.

However, the C-12 aircraft is a contractor supported aircraft, which includes contractor support and inspection of the survival kit. But it is to your advantage to ensure that these survival kits are inspected and up to date.

If you have a question on the C-12 aircraft survival kit, we recommend that you call the U.S. Army Troop Support and Aviation Materiel Readiness Command (TSARCOM) System Manager of the C-12 aircraft. He is LTC George R. Catron, and can be reached on AUTOVON 693-0600, or by writing: Commander, TSARCOM, ATTN: DRSTS-WP (2) (LTC Catron), 4300 Goodfellow Blvd., St. Louis, MO 63120.

So What's New

The following is a list of survival equipment that one aviator included in his transoceanic flight:

- 5 cans of Army emergency rations
- 1 ball of cord
- 1 coil of heavy string, with 2 fish hooks
- 1 large needle
- 4 red flares sealed in a rubber bicycle tube
- 1 hack saw blade
- 1 air cushion seat

Terri Ann Stebbins
Photo by Tom Greene

- 1 match safe container, with matches
- 1 cloth bag to contain the above items
- 1 air raft with pump and repair kit
- 1 canteen of water—4 quarts
- 1 Armbrust cup
- 1 hunting knife
- 1 flashlight

The above items were purchased by Charles A. Lindbergh for his transatlantic flight from New York to Paris in 1927. Yet today we are still attempting to convince some aircrewmembers of the necessity of survival equipment. Mr. Lindbergh was hard pressed, attempting to reduce the weight of his aircraft which was critical. But he carefully evaluated which items could be removed from his aircraft to reduce weight. From that list of survival equipment he considered these items indespensible.

Mr. Lindbergh fully recognized that his survival equipment was a high priced (in weight) luxury to have aboard the "Spirit of St. Louis." He also realized that he had to be self-sustaining in the event his aircraft fell from the sky.

Snake Bite Kit

One of our readers from Ft. Hood, TX wrote and suggested that we include a snake bite kit (NSN 6545-00-526-1887), cost $1.05, from Government Services Administration, in our equipment pamphlet of aviation life support equipment. The next time we update our pamphlet, we will include the snake bite kit. But I wonder why the fellows at Ft. Hood are concerned about snake bite?

Aviation Command Changes

Brigadier General (P) James H. Patterson, deputy commanding general of the U.S. Army Aviation Center at Ft. Rucker, AL, is being reassigned this month and will become Chief of Battlefield Integration Systems at Headquarters, U.S. Army Materiel Development and Readiness Command in Washington, DC.

Brigadier General Carl H. McNair Jr. is being reassigned as the deputy commanding general at the Aviation Center from his position as Deputy Director of Requirements and Army Aviation Officer, Office of the Deputy Chief of Staff for Operations and Plans (DCSOPS) at the Department of the Army.

Colonel (P) Richard D. Kenyon who has been the UH-60 Black Hawk Project Manager, will be replacing General McNair at DCSOPS.

Brigadier General (P) James H. Patterson

Brigadier General Carl H. McNair Jr.

Colonel (P) Richard D. Kenyon

what's new
In aviation training literature

New TEC Lessons Completed

2LT David R. Halverson
Course Development Division
Directorate of Training Developments
U.S. Army Aviation Center
Ft. Rucker, AL

PROGRESS IS WELL underway for the release of 26 new aviation-related training extension course (TEC) lessons. The new TEC lessons for military occupational specialties (MOSs) 67N, 71P and 93H/J are complete and ready for fielding. They will cover a wide range of information for the foregoing MOSs and will contain a wealth of supplemental information for related MOS holders. Great! But wait . . . What exactly are TEC lessons and what makes them so important?

The Army's TEC Program began in the early 1970s. It initially was designed for the combat MOSs, but with its success there, lessons soon were being developed for many of the noncombat-related MOSs. Now there are TEC lessons for almost every MOS.

How can you as a trainer or a Soldier use the TEC Program? TEC can be used to prepare for the skill qualification test (SQT), aid in on-the-job training (OJT), provide refresher training or can be used in resident training.

TEC is self-paced so you can learn at your rate of speed. All lessons are analyzed to determine the method of presentation which will most effectively teach the task. They are then validated through a series of individual trials and group validations to ensure that the material will teach the target population (a pool of potential entrants to training meeting certain general criteria for which instructional materials are designed and tested).

Another important part of the TEC Program is the pretest. Pretests are designed for each specific lesson to help you evaluate your

Figure 1

MOS	TEC Lesson Number	Title
67N	600-011-6607F	Serviceability Criteria of the Stabilizer Bar
67N	600-011-6608F	Serviceability Criteria of the Main Rotor Hub and Blade Assembly
67N	600-011-6609F	Serviceability Criteria of the Swashplate, Collective Sleeve Assembly
67N	600-011-6610F	UH-1H Rotor Systems Serviceability Criteria

Figure 2

MOS	TEC Lesson Number	Title
67N	600-011-6615F	Remove the Stabilizer Bar and Main Rotor Hub and Blade Assembly
67N	600-011-6616F	Remove and Install the Main Rotor Blades
67N	600-011-6617F	Install Main Rotor Hub and Blade Assembly and Stabilizer Bar Assembly
67N	600-011-6618J	Performing the Removal and Installation of the Stabilizer Bar and Main Rotor Hub and Blade Assembly, UH-1H Helicopter

knowledge of the subject. If you pass the pretest, you would not need to take the lesson. If you could not pass the pretest, you would proceed with the TEC lesson at your own pace and then take a similar posttest. If you could not pass the posttest, you would review the lesson and retest as often as necessary to master the objectives of the lesson.

The multimedia choices available ensure that the information will be presented in the most effective way. The three major media being used are audio only (uses a standard cassette tape and player), audiovisual (uses a super eight film loop and cassette tape) and printed lessons (usually written as programed texts). Future TEC media may include videodisc, computer assisted instruction or any number of new media systems.

Now that you know what TEC is about, let's look at what new courses will be available soon. Eight new TEC lessons are coming to aid 67Ns! Four of these can be used to train or review helicopter mechanics in the knowledge or skills required to inspect and identify whether damage limits have been exceeded on

Opposite page: TEC lessons assist helicopter mechanics in inspecting and determining if damage limits have been exceeded on UH-1 Huey tail rotor systems

Left: Air traffic controllers may use TEC lessons to train or review in the proper use of approved instrument flight rules shorthand

main and tail rotor system components on a UH-1 Huey helicopter. These lessons are shown in figure 1.

Figure 2 lists a second series of lessons which can be used to train or review helicopter mechanics in the knowledge and skills required to remove and install the main rotor assembly on the UH-1D/H helicopter.

For the 71P MOS, there are a series of eight new lessons coming. These lessons are concerned with interpreting weather reports and forecasts. The first five lessons sequence reports and cover circuit headings, sky conditions and ceiling classifiers. These lessons are listed in figure 3.

The second series of lessons for the 71P MOS deal with meteorological terminal aviation reports (METAR) and terminal forecasts (figure 4).

The 93H/J MOS holders can expect 10 new TEC lessons. The first five lessons can be used to train or review air traffic controllers in the proper use of approved instrument flight rules (IFR) shorthand (control abbreviations and symbols) (figure 5).

Figure 6 shows the second five lessons which contain common task items for 93H/J. These lessons teach correct phraseology for numbers usage over air traffic control radio and interphone, facility identification, aircraft identification (two parts), and correct radio and interphone procedures. This includes matching the correct radio frequency assignments with particular transmission types using an abbreviated transmission format.

Remember, TEC lessons are a valuable part of any unit training program. They may be used for SQT training, OJT, remedial training or refresher training. Some may be used for resident training as a supplement or a replacement for conventional training. More information on these courses will be printed in coming issues of the *Aviation Digest.*

Figure 3

MOS	TEC Lesson Number	Title
71P	517-011-6005A	Hourly Weather Reports, Part I
71P	517-011-6006A	Hourly Weather Reports, Part II
71P	517-011-6007A	Hourly Weather Reports, Part III
71P	517-011-6008A	Hourly Weather Reports, Part IV
71P	517-011-6009A	Hourly Weather Reports, Part V

Figure 4

MOS	TEC Lesson Number	Title
71P	517-011-6010A	METAR, Part I
71P	517-011-6011A	METAR, Part II
71P	517-011-6012A	Terminal Weather Forecasts

Figure 5

MOS	TEC Lesson Number	Title
93H/J	222-011-6201A	Control Information Symbols, Part I
93H/J	222-011-6202A	Control Information Symbols, Part II
93H/J	222-011-6203A	Clearance Abbreviations
93H/J	222-011-6204A	Miscellaneous Abbreviations
93H/J	222-011-6205F	Encoding and Decoding IFR Data (Practical Exercise)

Figure 6

MOS	TEC Lesson Number	Title
93H/J	222-011-6215F	Numbers Usagé
93H/J	222-011-6216F	Facility Identification
93H/J	222-011-6217F	Aircraft Identification, Part I
93H/J	222-011-6218F	Aircraft Identification, Part II
93H/J	222-011-6219F	Radio and Interphone Communications

Vision, Courage

The men at right displayed these traits as Army aviation pioneers in the '50s and '60s. Viewing an H-13 helicopter armament system at Ft. Rucker in late 1960 are (L-R) General Bruce Clark; Major General Ernest F. Easterbrook; Major Carroll M. Cook and Warrant Officer Clarence J. Carter (see *Aviation Digest*, June 1967, page 22)

Betty Goodson
Public Affairs Office
Fort Rucker

RECOLLECTIONS of the past and predictions of the future set the tone last month at the U.S. Army Aviation Center during special Fort Rucker Day ceremonies marking the 37th birthday of Army aviation.

Major General James H. Merryman, Ft. Rucker's commanding genal, told a crowd of people Thursday morning at the Army Aviation Museum that many things have happened in these years to cause pride since Army aviation was born on 6 June 1942 at Ft. Sill, OK.

General Merryman cited highlights of Army aviation's growth, and paid tribute to those people responsible for it. "We have come a long way because we have had people with vision and courage to see what was needed," he said. "And I have no doubt that the next 37 years will provide giant strides which will make the last 37 look as if we were walking."

The birthday cake which General Merryman and Colonel Robert A. Bonifacio cut at the museum was sponsored by the Army Aviation Association of America. Colonel Bonifacio is president of the local chapter and president of the U.S. Army Aviation Board.

Army aviation's history also was marked by the opening of the Ft. Wolters Room at the Warrant Officer Candidate Hall of Fame at Ft. Rucker. At that ribbon cutting ceremony, General Merryman recalled that the primary portion of the initial entry rotary wing aviator course was conducted at Ft. Wolters, TX from 1956 until it was moved to Ft. Rucker in 1973.

Contained in the Ft. Wolters Room are pictures, flags and other mementoes of the 41,000 aviation students who were trained at the Texas base.

Many aspects of aviation are memoralized in the more than 400 books and periodicals which were given Thursday to the Army Aviation Center Library by Helen Jackson Sniffen of Bethesda, MD.

In making the presentation, which was accepted for the Ft. Rucker community by its commanding general, Mrs. Sniffen said the collection was the pride of her late husband, Colonel Bennett L. Jackson.

Mrs. Sniffen said, "I wanted to make this gift, not only to keep alive the memory of a very proud officer who, although he was not an Army pilot, was so interested in aviation, but also in the fervent hope that it will help to sustain the interest in flying which the young people in Army aviation have today."

In 1960 Colonel Jackson was stationed at Ft. Rucker as commander of the 2nd Battle Group, 31st Infantry. The 2nd Battle Group played a key role in the early development of ordnance, weapon systems and tactics used by helicopters today in airmobile/air assault operations.

A glimpse into Army aviation's future was demonstrated on Ft. Rucker Day by the display on the Center Parade Field of the new UH-60 Black Hawk helicopter.

General Merryman pointed out that the UH-60 is the first of a family of aircraft designed specifically to meet the Army's needs. Such equipment is being procured because the contributions of Army aviation are counted as a major factor in the Nation's armed forces.

EPMS CORNER Enlisted Personnel Management System

Assignment Of
Married Army Couples
(Joint Domiciles)

SFC Thomas L. Bice
Aviation Career Advisor
U.S. Army Military Personnel Center
Alexandria, VA

WITH THE INCREASING number of women enlisting in today's Army, the assignment of married Army couples has become a growing concern. Chapter 3, Section III, AR 614-200 describes the procedures necessary for married Army couples to apply for a "joint domicile."

The key sentences which each married Army couple should understand are contained in paragraph 3-13A. *"Whenever possible, married couples who are both members of the Army will be assigned to locations where they can establish a common household." ". . . while MILPERCEN [Military Personnel Center] will attempt to minimize family separations, the Soldiers concerned share in this responsibility. Decisions relating to family planning, reenlistment and career development cannot be based on the assumption that MILPERCEN will guarantee a joint assignment and/or a given period of stabilization."*

Even though a military occupational specialty (MOS) may be authorized at a particular installation, it does not mean that a request for joint domicile will be approved. Strength by MOS and grade is of paramount importance. Requisitions for the individuals concerned must be available before any consideration for establishing a joint residence can be attempted.

Requests for joint domicile, when one spouse is either overseas, or is on assignment instructions overseas, are the most difficult and pose the biggest problem for MILPERCEN. Once an application has reached MILPERCEN, the assignment manager researches current requisitions for availability. If a requisition is available, processing of the application does not stop. The assignment manager must then send the available requisition number to either the Korea Liaison Office or the Europe Liaison Office located in MILPERCEN. For overseas areas other than Korea and Europe, the overseas distribution manager is contacted.

The Korea Liaison Office contacts their counterparts in MILPERCEN-K and passes the information regarding the requested joint domicile and the requisition number to them. In Korea, MILPERCEN-K determines if the Soldiers concerned can establish a joint residence and receive command sponsorship. The number of authorized personnel located in these areas is extremely limited. Housing outside of these areas is not available at Government expense. Requests for joint domicile may be approved only in a command sponsored area. The main difference between the command sponsored area and the other areas in Korea is the tour length. The length of tour in a command sponsored area is 24 months, while the tour length in all other areas is 12 months.

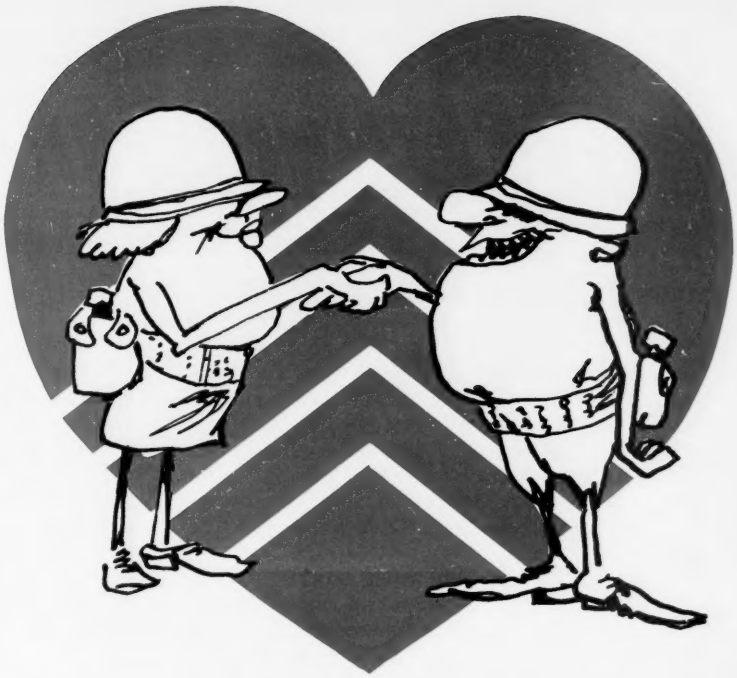
The Europe Liaison Office contacts their personnel in much the same manner as the Korea Liaison Office and passes on similar information. The 1st Personnel (PERSCOM) in Schwetzingen, Germany, is responsible for processing joint domicile requests. Besides the problem of limited requisitions available, the personnel assets in Germany are spread over a vast area. Many locations have only one or two of a certain MOS. Different commands in Germany provide another obstacle. While 1st PERSCOM controls the majority of personnel assigned in Europe, United States Army Communications Command, North Atlantic Treaty Organization, Supreme Headquarters Allied Powers Europe, and Berlin Brigade control a large number of personnel as well. The coordination required between commands in assigning personnel requesting joint domicile, therefore, becomes an immense task. Certain peculiarities add but another major problem. Some assignment areas require a certain type of security clearance while other's, such as Berlin Brigade, have

restrictions on being assigned for a second time.

Problems seemingly not related to a joint domicile request cause confusion and often disappointment for individuals concerned. Soldiers failing to properly complete forms such as those for concurrent travel of dependents of those requesting housing are of major concern.

These problem areas, combined with the availability of housing, are key issues which determine approvals of joint domicile requests.

Due to the growing number of married Army couples requesting joint domicile, the processing time for applications at MILPERCEN is increasing. Personnel requesting joint domicile can expect at least a 30-day waiting period. Total processing time from the consolidation of military personnel activities (COMPACT) office to MILPERCEN and return could take as long as 90 days depending on the chain of command involved.



Procedures in Chapter 3, Section III, AR 614-200 must be strictly followed. One new change to this regulation has a tremendous impact. Paragraph 3-14d now reads "The individual requesting reassignment must complete at least 12 months at present duty station prior to departure. . . ."

Key Functions You Need To Accomplish

- **Update DA Form 2, Item 59, to reflect the appropriate code for married Army couples.**
- **Ensure all forms submitted which are connected with a reassignment reflect all pertinent data regarding requests for joint domicile and status of any dependents.**

Key Items For You To Remember

- **The processing time is long (30 days at MILPERCEN alone).**
- **Soldiers must complete 12 months onstation.**
- **Because a Soldier is married to another Army member does not guarantee approval of a joint domicile request.**

There also has been a recent change to the regulation pertaining to DA Form 2 in regards to married Army couples. Previously, married Army couples had an assignment eligibility area (AEA) code of "H" entered in item 34 of their DA Form 2. The AEA code "H" will no longer be used. Instead married Army couples will have a special code in the marital status section of the DA Form 2 (Item 59). The new code ("J") aids all personnel offices in readily identifying married Army couples. This code will not automatically place both Soldiers on assignment instructions at the same time and into the same location.

Married couples should make use of the local military personnel offices (MILPOs). The MILPOs, COMPACTs, and personnel staff noncommissioned offices (PSNCOs) are familiar with the appropriate regulations and can make requesting a joint domicile less difficult.

What's a Configuration Management (CM) all about?

For air traffic control (ATC) and navigational aid (NAVAID) facilities it is an effort to keep these facilities in an established configuration. You know, to keep them from becoming wild and woolly.

Good idea, but what says that we have to do it?

This is a Department of Defense program which has been implemented by AR 70-37 "Configuration Management," dated 1 July 1974. USACC Supplement 1 to this AR, 28 February 1977, lays it on for ATC and NAVAID facilities.

That's OK, but what's happening now?

We're conducting CM audits of our fixed base ATC and NAVAID facilities. These audits compare the latest "as built" drawings with the equipment that is actually in the racks or consoles. The drawings are marked up so that they represent the actual configuration at the facility. One set of marked up drawings is left on site for a reference and one set is sent forward to the U.S. Army Communications Electronics Engineering and Installation Agency (USACEEIA) for your geographical area.

What do they do with the marked up drawings?

They have a file of master drawings for your ATC/NAVAID facilities, so they simply correct these masters based upon the marked up drawings. Additionally, they send copies of the corrected master drawings to the site for your reference. In summary, the CM audits get the master drawings updated so that there is a good base upon which to manage configurations.

Fine, but what if I want to change something in my control tower or radio beacon?

Take a look at USACC Supplement 1 to AR 70-37, in particular Section III of Appendix K. This section gives you several ways that necessary changes can be approved and implemented into your facilities. If you need any of your drawings updated by our USACEEIA draftpersons, USACC Supplement 1, Appendix K, Section VII, tells you how to get this done.

Just how is CM going to be enforced, where are the teeth?

Once you've got your facility master drawings updated, you should keep them onsite and up-to-date. The ATC evaluation team will be checking these drawings against the actual facility configuration when they do your annual evaluation. Any differences will become findings and will require corrective action.

Readers are encouraged to send questions to:
Director
USAATCA Aeronautical Services Office
Cameron Station, Alexandria, VA 22314

Warrant Officers' 7th Annual Meeting

The United States Army Warrant Officers' Association (USAWOA) will host its seventh annual meeting of the members at the Charter House Motel, 6461 Edsall Road, Alexandria, VA 22312, 12 through 16 August 1979. All warrant officers, active duty, reserve, national guard and retired are invited to attend

☆ U.S. GOVERNMENT PRINTING OFFICE: 1979—640-046/4

1st
Robert L. Baird

2nd
Michael J. Novosel

3rd
Frank T. Peterlin

July MAJ Frank Peterlin Offensive Attack Helicopter Operations	*August* CPT Charles Nowlin Think About the Unthinkable	*September* CPT Thomas Stewart Rescue On Rainier
October SGT Phil Andrews 997th Arizona National Guard	*November* CPT Phillip L. Curtis and CPT Craig Geis 17th Aviation Group (Combat)	*December* Rod Gibson Aviation Warrant Office Advanced Course Restructured
January MAJ Charles Ray Joint Air Attack Team	*February* SP4 Kathy Allison MOS 68J Missile Systems Repair Course	*March* CPT Erick Mitchell A Helicopter Flight In The Korean Buffer Zone
April CW3 Robert Baird Air Combat—Something Old, Something New	*May* Roderick Van Pelt Air Crash Search and Rescue Map Improvement	*June* CW4 Mitchell Novosel Blind Flying

Annual Writing Awards

IF YOU SUBMIT an article you could be a winner in the *Aviation Digest's* nineteenth annual writing contest beginning this month. Each monthly winner will receive a certificate.

A person who does not place first will receive a certificate signifying that he or she has had an article published in the *Digest.* All authors receive credit in their 201 or appropriate civilian personnel files.

Three annual winners will be selected from the monthly first place winners. First, second and third place certificates will be awarded these winners.

To be eligible for publication in the *Digest.* an article must be original and concern Army aviation or related subjects. Winning articles are selected by judges who review the manuscripts without bylines. Selection is based on accuracy, completeness, originality, readability, soundness, substance and overall merit.

Authors should include pictures, diagrams or charts available or necessary to illustrate manuscripts. Your articles should be submitted to Editor, U.S. ARMY AVIATION DIGEST, P.O. Drawer P, Fort Rucker, AL 36362.

U.S. Army Photos by PVT Denise Starr

COL Robert A. Bonifacio, left, president of the Ft. Rucker, AL chapter of the Army Aviation Association of America, and MG James H. Merryman, post commanding general, cut the first slice of Army aviation's 37th birthday cake. SP5 Penni Hipwell, left background, and PFC Mellissa Sanocki helped host the ceremony 14 June at the Army Aviation Museum as part of Ft. Rucker Day festivities

More About Fort Rucker Day Activities, see "Vision, Courage," On Page 45

CWO Bennie Bacle, right, curator of the Warrant Officer Candidate Hall of Fame, Ft. Rucker, AL, shows MG James H. Merryman, post commanding general, some of the exhibits in the Ft. Wolters, TX Room. The room, which was opened 14 June during Ft. Rucker Day, contains memorabilia from classes which went through the primary portion of flight training at Ft. Wolters from 1956 until 1973. The Hall of Fame was opened at Ft. Wolters in 1967